OPERATIONAL INTELLIGENCE AND OPERATIONAL DESIGN:

THINKING ABOUT OPERATIONAL ART

BY

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The undersigned certify that this thesis meets masters-level standards of research, argumentation, and expression.

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DISCLAIMER

The conclusions and opinions expressed in this document are those of the author. They do not reflect the official position of the U.S. Government, Department of Defense, the United States Air Force, or Air University.

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spotlight but never the yoke of protecting our nation. To my many mentors and friends who continue to shape my understanding of our profession I say simply thank you. I hope this paper represents you well.

Finally, words here cannot describe how much I appreciate my family and their support. I am in constant wonderment at the exceptionalism and resilience of my wife and children. Their love, loyalty, and joy continually remind me just how blessed I am. It is to them I dedicate this project and the past eleven months.

Despite the assistance of those mentioned above, this work remains imperfect. All of the errors and limitations of this project are mine alone.

ABSTRACT

Uncertainty is an inescapable part of war that stems, in part, from war's "wicked" problems and the complex, adaptive systems that produce them. While uncertainty in war is chronic, both operational intelligence and Operational Design endeavor to mitigate it on behalf of the commander. Operational intelligence strives to make sense of past and current circumstances to inform future action; Operational Design endeavors to shape the future based on what is learned from the past and known or suspected about the present. Operational intelligence collects and analyzes information to build understanding of a complex situation; Operational Design translates understanding into an approach for achieving operational aims and strategic outcomes. Without uncertainty in war, there would be no need for operational intelligence or Operational Design; because of uncertainty, they become two sides of the same coin.

This project is about intelligence at the operational level of war. It is also about Operational Design and the 1948-1960 anti-communist counterinsurgency known as the Malayan Emergency. Using a dialectic approach, the project evaluates how operational intelligence should be influenced by emerging concepts of Operational Design. It first analyzes the essence and practice of operational intelligence, considers its relationship with the operational-level commander, and assesses its role in the Malayan Emergency. It then analyzes Operational Design, including a Design-based reassessment of the Malayan Emergency. Finally, it synthesizes studies of operational intelligence and Operational Design to produce insights and suggestions for commanders and their intelligence professionals on performing, educating, training, and equipping operational intelligence.

The project concludes that operational intelligence is more than tactical reconnaissance writ large. It suggests ways to balance operational intelligence's inherent tensions—those between the strategic and tactical and between collection and analysis—that will improve the effectiveness of the joint force. The project also concludes that operational intelligence and Operational Design are complementary cognitive processes that, together, can enrich operational art in the information age.

CONTENTS

Introduction

Uncertainty is a hallmark of war. Richard K. Betts, a leading scholar in the field of intelligence, wrote, "It is the role of intelligence to extract certainty from uncertainty and to facilitate coherent decision in an incoherent environment."[1] Complexity theory also informs the complicated decisions of Joint Force Commanders. Recognizing the extreme interconnectedness of our world and of our battlespaces is a crucial first step in coherent thinking.[2] However, identifying, analyzing, and forecasting the political, military, economic, social, infrastructural, and informational factors and linkages of complex, adaptive systems is not simple.

This project is about intelligence of a certain kind. It is not concerned with the intelligence of a given mind studied by psychologists; rather, it focuses on the kind of intelligence a commander must have to design and execute plans.[3] It considers the intelligence relevant to security.

The practice of intelligence involves two central functions that seek to demystify complex problems for commanders—collection and analysis.[4] Collection gathers information essential to effective decisionmaking. But collection is insufficient because the implications of much of the evidence gathered in war are ambiguous. Therefore,

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[1] Richard K. Betts, "Analysis, War, and Decision: Why Intelligence Failures are Inevitable," *World Politics* 31, no. 1 (October 1978), 69.
[2] Theodor Nelson described the information-age world as "intertwingled" because of its extreme interconnectedness. See Theodor Nelson, *Computer Lib* (Seattle, WA: Microsoft Press, 1987).
[3] Sherman Kent, *Strategic Intelligence For American World Policy*, 2nd Edition (Princeton, NJ: Princeton University Press, 1966), vii. Kent was a former Chairman of the Central Intelligence Agency's Office of National Estimates and a founding father of the American intelligence community. This paragraph paraphrases Kent's similar caveat on the kind of intelligence discussed in his book. While Kent's focus was strategic intelligence and the strategist, this project regards operational intelligence and the commander.
[4] Kent, *Strategic Intelligence For American World Policy*, 4. Kent divided intelligence operations into surveillance and research. This project uses the contemporary terms collection and analysis.

concerted thinking about the adversary and operational environment is also necessary. Exploring the relationship between collection, analysis, and decisionmaking in a complex environment is the overarching purpose of this project.

To the extent that collection and analysis are separable, the former seems to bedazzle actors of the information age. The complicated venture of intelligence, surveillance, and reconnaissance (ISR) is the product of what some refer to as a revolution in military affairs. As Admiral William Owens, then Vice Chairman of the US Joint Chiefs of Staff, anticipated in 1995, from the convergence of military practices and technologies emerged a system of systems that had the potential to transform modern warfare.[5] Today, increasingly powerful ISR capabilities can discern very small objects and momentary events. As one author prognosticated, we are witnessing the "disappearance of disappearance."[6]

Consequently, the promise of technology draws commanders and their directors of intelligence toward constructing an ideal-type brilliant battlespace in which networked sensors illuminate the arena and penetrate the fog of war.[7] Commanders yearn to make informed decisions, so accurate discernment in the midst of uncertainty is the

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[5] William A. Owens, "The Emerging System of Systems," *Military Review* 75, no. 3 (May/Jun 1995): 15.

[6] K.D. Haggerty and R.V. Ericson, "The Surveillant Assemblage," *British Journal of Sociology* 51, no. 4 (December 2000), 619.

[7] The "brilliant battlespace" is an ideal-type operational area fully illuminated by information age technologies so as to achieve a level of omniscience in and perfect understanding of that battlespace. The term differs from the "brilliant weapons" described by Eric H. Arnett in "Welcome to Hyperwar." Arnett's weapons are "crewless tanks, cruise missiles that behave like kamikaze robots, advanced air-defense missiles, and anti-missile satellites…," and those machines that will "carry out battle decisions independent of their human counterparts." While autonomy from humans characterizes *brilliant* (i.e. intelligent) *weapons*, the *brilliant* (i.e. illuminated) *battlespace* informs human decisionmaking. As such, the author's use of the term more closely resembles Martin Libicki's term "battlespace illumination." See Eric H. Arnett, "Welcome to Hyperwar," *The Bulletin of the Atomic Scientists* 48, no. 7 (1 Sep 1992), 15, and Martin C. Libicki, "Information War, Information Peace," *Journal of International Affairs* 51, no. 2 (Spring 1998), 411-428.

intelligence professional's business. To this end, as part of the modern command, control, communications, computers and intelligence system, intelligence leaders strive to design and direct a panoptic "mesh" or "surveillant assemblage" that peers through the twilight to describe the operational environment, divine the adversary's capabilities and intentions, and achieve a decisive advantage in battlespace knowledge.[8]

Nevertheless, uncertainty in war remains a persistent and perverse reality. Where does it come from? There are multiple answers to this question. Heisenberg's uncertainty principle stated that ambiguity is always present in the perceptible realm.[9] The Prussian sage Carl von Clausewitz attributed uncertainty to the free will of the adversary and the inherent limitations of the human mind.[10] Claude Shannon, the founder of information theory, identified "information overload" as a noisy source of uncertainty.[11] Thomas Kuhn indicted the limits of human cognition as the cause of incomplete understanding.[12] Robert Jervis argued that cognitive biases limit accurate perception.[13] At the center of warfare and uncertainty is the human being, in all his power and frailty.

The variety of potential human choices makes war a complex and dynamic endeavor. The Chinese theorist Sun Tzu said, "Now in war there may be one hundred changes in each step."[14] Despite even great efforts of collection and analysis, there will always be residual

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[8] Martin C. Libicki, *The Mesh and the Net: Speculations on Armed Conflict in a Time of Free Silicon* (Washington, DC: Institute for National Strategic Studies, 1994); Haggerty and Ericson, "The Surveillant Assemblage," 605-622.

[9] Werner Heisenberg, *The Physical Principles of the Quantum Theory*, translated by Carl Eckart and F.C. Hoyt (Mineola, NY: Dover Publications, Inc., 1949), 13-19.

[10] Carl von Clausewitz, *On War* (Princeton, NJ: Princeton University Press, 1976), 137-140.

[11] Claude E. Shannon, "A Mathematical Theory of Communication," *Bell System Technical Journal* 27 (July and October 1948): 379-423, 623-656.

[12] Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3rd Edition (Chicago, IL: Chicago University Press, 1996).

[13] Robert Jervis, *Perception and Misperception in International Relations* (Princeton, NJ: Princeton University Press, 1976).

[14] Sun Tzu, *The Illustrated Art of War*, translated by Samuel B. Griffith (New York, NY: Oxford University Press, 2005), 124.

uncertainty.[15] This is why the military historian Martin Van Creveld described war as an "irrational business par excellence."[16]

Most commanders and intelligence professionals recognize the brilliant battlespace and perfect knowledge as being types of *fata morgana*. Intelligence cannot achieve omniscience, nor can it prophesy the future. Rather, it is a thoughtful endeavor to reduce the number of times a commander is surprised.[17] The intractable inadequacy of intelligence requires a necessary degree of fatalism among warriors.[18] Nevertheless, forecasts remain helpful and may even provide a significant advantage in the complicated enterprise of war.

Theories on systems and complexity help explain the character of the universe, including its wars and battlespaces. Scholarship on the complexity of systems has recently emerged from an improved understanding of and tolerance for uncertainty. For centuries, the reductive approaches of scientific research and rational thought illuminated the world's constituent parts.[19] Understanding the interactions among those parts is the aim of complexity theory. Albert-Laszlo Barabasi, in his book *Linked: The New Science of Networks*, wrote, "Today we increasingly recognize that nothing happens in isolation. Most events and phenomena are connected, caused by, and interacting with a huge number of other pieces of a complex universal puzzle."[20]

M. Mitchell Waldrop, author of *Complexity: The Emerging Science at the Edge of Order and Chaos*, defined complex systems as those in which "a great many independent agents are interacting with each other in a

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[15] Roy Pateman, *Residual Uncertainty: Trying to Avoid Intelligence and Policy Mistakes in the Modern World* (Lanham, MD: University Press of American, Inc., 2003).
[16] Martin Van Creveld, *Command in War* (Cambridge, MA: Harvard University Press, 1985), 16.
[17] Loch K. Johnson, *Secret Agencies: US Intelligence in a Hostile World* (New Haven, CT: Yale University Press, 1996), 141.
[18] Richard K. Betts, "Analysis, War, and Decision," 89.
[19] Albert-Laszlo Barabasi, *Linked: The New Science of Networks* (Cambridge, MA: Perseus Publishing, 2002), 6.
[20] Barabasi, *Linked*, 7.

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great many ways."[21] With each interaction, the agents adapt, responding to environmental stimuli. This imbues complex, adaptive systems with, according to Waldrop, "...a kind of dynamism that makes them qualitatively different from static objects...."[22]

As we recognize and understand the interconnectedness of our world, we enlarge and adjust explanatory models that inform decisionmaking. However, the more we know, the more we also realize that our understanding of our ever-changing universe is incomplete. Additionally, as information-age technology compresses space and time, it increases the scale and pace of interactivity and change. [23] While the world has always been complex, both enhanced understanding of it and advancing technology contribute to our perceptions of increasing complexity.

How is complexity understood? Waldrop contended that interdisciplinary approaches best lift the shroud of complexity.[24] The discipline of intelligence analysis has a rich history and growing literature on analysis and decision support in the midst of ambiguity. Similarly, a more recent discourse on what is called Operational Design presents techniques for commanders and planners to cope with uncertainty and complexity.

Operational Design emerged when military thinkers began applying insights from the multi-disciplinary literature of Design to the operational art of war. Operational Design is a non-linear and iterative process intended to help commanders develop operational approaches by aiding their understanding of the complex environments in which they operate and the complex problems they face. Like their intelligence counterparts, designers work to mitigate the uncertainty that surrounds

[21] M. Mitchell Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos* (New York, NY: Simon & Schuster Paperbacks, 1992), 11.
[22] Waldrop, *Complexity*, 11-12.
[23] Thomas L. Friedman, *The World is Flat: A Brief History of the Twenty-first Century* (New York, NY: Farrar, Straus and Giroux, 2006).
[24] Waldrop, *Complexity*, 67.

the commander. This shared purpose leads to the project's central question: How should the practice of intelligence at the operational level of war be influenced by emerging concepts of Operational Design?

The superstructure of this project is a simple dialectic between intelligence and Design at the operational level of war. The study proceeds through five logical steps. Its initial stage—comprised of the first three chapters—examines operational intelligence, including its essence, practice, and relationship with the principal decisionmaker—the commander. Chapter One begins by exploring the essence of intelligence through an examination of its various definitions. Next, it considers the emergence of the operational level of war in military thought. Finally, it synthesizes intelligence and war's operational level to propose a definition of operational intelligence. This chapter draws from a range of theoretical and secondary sources, including Clausewitz's *On War*; Sherman Kent's classic 1949 work *Strategic Intelligence For American World Policy*; and American joint military doctrine.[25] Because scholarship on operational intelligence is relatively sparse, the first three chapters transfer numerous insights from a substantially larger body of work on strategic intelligence.[26]

Chapter Two examines the practice of intelligence at the operational level of war. It begins by describing the characteristics of operational intelligence, including its purposes, consumers, processes, and products. It then distills the activities of operational intelligence into its two most central functions—collection and analysis. The chapter supplements its references to US joint military doctrine with sources from the intelligence literature, including Betts's "Analysis, War, and Decision"; Ernest May's *Knowing One's Enemies;* Joseph Nye's "Peering

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[25] Clausewitz, *On War*; Kent, *Strategic Intelligence for American World Policy.*

[26] For an explanation of the lack of military intelligence scholarship, see David Thomas, "U.S. Military Intelligence Analysis: Old and New Challenges," in *Analyzing Intelligence: Origins, Obstacles, and Innovations*, edited by Roger Z. George and James B. Bruce (Washington, DC: Georgetown University Press, 2008), 138-154.

Into the Future"; and, Richards Heuer, Jr.'s *Psychology of Intelligence Analysis.*[27]

The third chapter considers the relationship between the operational-level commander and intelligence. It examines the attributes of commanders and intelligence advisors that contribute to the successful conduct of intelligence. It also highlights the central role of the commander in the employment of intelligence. The chapter leans heavily on two works edited by the historian and military intelligence scholar Michael Handel: *Leaders and Intelligence* and *Intelligence and Military Operations.*[28]

The second stage of the project assesses empirical evidence of the interaction between intelligence and the formulation of operational concepts by examining the historical example of the 1948-1960 anti-communist counterinsurgency known as the Malayan Emergency. Chapter Four begins with a brief overview of the Emergency that identifies key events, decisions, and leaders. In this early section, the chapter diverges slightly from existing scholarship by presenting a new periodization that coincides with changes in British strategy. Next, the chapter considers the evolution of collection and analysis relative to those periods. It also spotlights the successes, failures, structures, and key relationships of intelligence during the Emergency. Sources for this chapter include several primary and secondary works. It references multiple British Government documents found in A.J. Stockwell's helpful compilation entitled *British Documents on the End of Empire: Malaya.*[29]

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[27] Betts, "Analysis, War, and Decision," 61-89; Ernest R. May, ed., *Knowing One's Enemies: Intelligence Assessment Before the Two World Wars* (Princeton, NJ: Princeton University Press, 1984); Joseph S. Nye, "Peering into the Future," *Foreign Affairs* 73, no. 4 (Jul/Aug 1994), 82-93; Richards J. Heuer, Jr., *Psychology of Intelligence Analysis* (Washington, DC: Center for the Study of Intelligence, 1999).

[28] Michael I. Handel, ed., *Leaders and Intelligence.* (Totowa, NJ: Frank Cass, 1989); Michael I. Handel, ed., *Intelligence and Military Operations.* (Portland, OR: Frank Cass, 1990).

[29] A.J. Stockwell, *British Documents on the End of Empire: Malaya. Part II, The Communist Insurrection, 1948-1953* (London: HMSO Books, 1995).

Among the most influential secondary sources were Riley Sunderland's 1964 report "Antiguerilla Intelligence in Malaya, 1948-1960"; Richard Clutterbuck's *The Long Long War*; John Cloake's biography *Templer: Tiger of Malaya*; John Coates's *Suppressing Insurgency*; and, Karl Hack's "British Intelligence and Counter-Insurgency in the Era of Decolonisation: The Example of Malaya."[30] By the chapter's end, the reader will appreciate what operational intelligence is; how it supports multiple customers including the commander; and, how it influences the development of the operational concept.

The project next analyzes Operational Design to include its essence, practice, and relationship with the commander. Chapter Five assays the essence of Operational Design by first regarding the concept of Design from which it evolved. It begins by explaining the relationship between uncertainty and complexity using concepts from systems theory, which is the theoretical foundation of Design. It then examines the complexity of social systems and their so-called "wicked" problems. Finally, it outlines in some detail the process of Design and evaluates its utility in managing uncertainty and complexity. Chapter Five extracts material from various sources on systems theory, complexity, and Design. Three classics in the field constitute the major source works: Peter Checkland's *Systems Thinking, Systems Practice*, Horst Rittel and Melvin Webber's "Dilemmas in a General Theory of Planning", and Bryan Lawson's *How Designers Think*.[31]

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[30] Riley Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," Memorandum RM-4172-ISA (Santa Monica, CA: The RAND Corporation, September 1964); Richard L. Clutterbuck, *The Long Long War: Counterinsurgency in Malaya and Vietnam* (New York, NY: Frederick A. Praeger, Publishers, 1966); John Cloake, *Templer: Tiger of Malaya* (London: Harrap Limited, 1985); John Coates, *Suppressing Insurgency: An Analysis of the Malayan Emergency, 1948-1954* (Boulder, CO: Westview Press, 1992); Karl Hack, "British Intelligence and Counter-Insurgency in the Era of Decolonisation: The Example of Malaya," *Intelligence and National Security* 14, no. 2 (Summer 1999), 124-155.
[31] Peter Checkland, *Systems Thinking, Systems Practice* (New York, NY: John Wiley & Sons, 1993); Horst W.J. Rittel and Melvin M. Webber, "Dilemmas in a General Theory of Planning," *Policy Sciences* 4 (1973), 155-169; Bryan Lawson, *How Designers Think: The Design Process Demystified*, 4th Edition (Burlington, MA: Architectural Press, 2006).

Chapter Six evaluates Operational Design as a theoretical construct. It first sketches the concept's origin and background. Next, it defines Operational Design and distinguishes it from planning at the operational level of war. It then assesses the method's five steps—environmental framing, problem framing, operational approach development, documentation, and reframing—and considers the roles of the commander and the design team in the process. This chapter consults several sources, including Shimon Naveh's *In Pursuit of Military Excellence*, Alexander Ryan's *Art of Design* from the School of Advanced Military Studies (SAMS), John Schmitt's "A Systemic Concept for Operational Design", and Jack Kem's *Design: Tools of the Trade*.[32] It also references US joint and US Army doctrine on planning. An additional trove of insight was the collection of student theses, primarily from SAMS, that explores various aspects of Operational Design.

Chapter Seven, the project's fourth stage, reassesses the Malayan Emergency using the concepts of Operational Design. It evaluates the development of an understanding of the Emergency's context and central problem by two commanders, which informed the creation and continuation of a successful operational approach. It also considers their collaborative leadership styles during the process. It then examines the composition of one commander's design team. This chapter relies on the same sources as those used in Chapter Four. By its conclusion, the reader will better appreciate what Operational Design is, how it supports the commander, and how it influences the development of the operational concept.

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[32] Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory* (New York, NY: Frank Cass, 2004); Alexander Ryan, *Art of Design: Student Text Version 2.0* (Ft. Leavenworth, KS: School of Advanced Military Studies, 2010); John F. Schmitt, "A Systemic Concept for Operational Design," Unpublished Paper, accessed December, 20, 2010, http://www.au.af.mil/au/awc/awcgate/usmc/mcwl_schmitt_op_design.pdf; Jack D. Kem, *Design: Tools of the Trade* (Ft. Leavenworth, KS: US Army Combined Arms Center, May 2009).

Chapter Eight constitutes the project's final stage. It synthesizes the insights gained from the conceptual and evidentiary assessments of intelligence with the insights gained from studying Operational Design to produce a conclusion as to how emerging concepts of Operational Design should influence the practice of operational-level intelligence. The sources for this chapter are mostly the same as those used throughout the project. However, a handful of additional works proved useful in refining the argument, including Williamson Murray and Allan Millett's *Military Effectiveness*, Stephen Rosen's *Winning the Next War*, Antoine Bousquet's *The Scientific Way of Warfare*, and Peter Senge's *The Fifth Discipline*.[33]

The project's final section summarizes its major conclusions and presents several implications of this research for the education, training, equipping, and employment of operational intelligence in the information age.

The main ambition of this project is to help commanders and intelligence professionals improve the effectiveness of operations through the optimal employment of intelligence at the operational level of war. If it contributes modestly toward a more comprehensive understanding of operational intelligence, it will be successful. In doing so, it will also add a small token to the relatively limited discourse on operational intelligence.

The project also aims to bridge the emerging scholarships on operational intelligence and Operational Design, two potentially complementary cognitive processes intended to aid commanders in the effective conduct of operations and campaigns. Little research exists on

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[33] Williamson Murray and Allan R. Millett, eds., *Military Effectiveness: Volumes 1-3, New Edition* (New York, NY: Cambridge University Press, 2010); Stephen R. Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, NY: Cornell University Press, 2001); Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (New York, NY: Columbia University Press 2009); Peter Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization,* 2nd Edition (New York, NY: Currency, 2006).

the role of intelligence in Operational Design. Connecting these literatures may expand our understanding of both concepts.

A tertiary goal is to shed new light on the ingredients of success in the Malayan Emergency, especially the role played by intelligence. While the evidence marshaled in Chapter Four should enrich the reader's understanding of operational intelligence, it may also shape his understanding of how intelligence affected the decisions of Lieutenant General Sir Harold Briggs and General Sir Gerald Templer. To the knowledge of this researcher, a previous analysis of the Malayan Emergency through the rubric of Operational Design does not exist. Chapter Seven may contribute in a very small way to the literature on Malaya and to that on Operational Design.

Having presented the project's central themes, method, roadmap, major sources, and ambitions, the examination of intelligence at the operational level of war awaits.
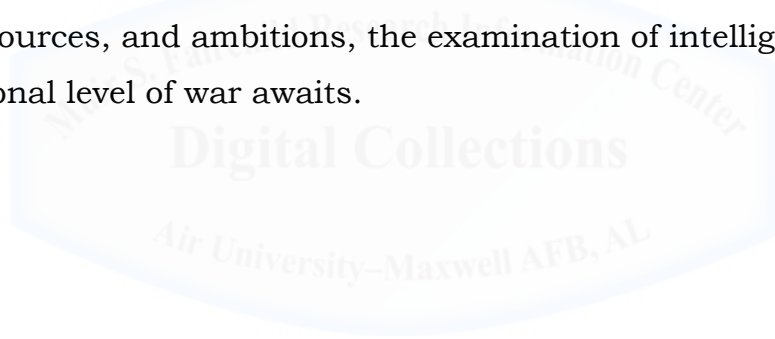
Chapter 1

Intelligence at the Operational Level of War

Now the reason the enlightened prince and the wise general conquer the enemy whenever they move and their achievements surpass those of other men is foreknowledge.

Sun Tzu

The pursuit of superior intelligence is as old as war. The prominent military historian Martin Van Creveld, in his book *Command in War*, concluded, "From Plato to NATO, the history of command in war consists essentially of an endless quest for certainty."[1] This quest for battlespace awareness actually predates Plato. Moses and Joshua commissioned spies before the Israelite invasion of Canaan.[2] Sun Tzu's admonitions on foreknowledge and spycraft indicate that Chinese generals during the Warring States period recognized the significant advantage of information superiority.[3] Intelligence, quipped one author, is the second-oldest profession.[4]

Despite the timeless relationship between intelligence and war, much of the literature overlooks operational intelligence. Related scholarship focuses mostly on strategic or tactical intelligence and lacks sufficient depth of field to clearly depict intelligence at the operational level of war. This chapter aims to help fill that void.

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[1] Martin L. Van Creveld, *Command in War* (Cambridge, MA: Harvard University Press, 1985), 264.
[2] Numbers 13:1 and Joshua 2:1.
[3] Sun Tzu, *The Illustrated Art of War*, translated by Samuel B. Griffith (New York, NY: Oxford University Press, 2005), 103, 125, 231-239.
[4] Phillip Knightley, *The Second Oldest Profession: Spies and Spying in the Twentieth Century* (New York, NY: W.W. Norton, 1986).

Operational intelligence is, fundamentally, intelligence at the operational level of war.[5] This chapter analyzes and synthesizes these two constituent parts—intelligence and war's operational level—before proposing a definition of operational intelligence. First, it assesses classic and contemporary definitions of intelligence. Next, it traces the emergence of the operational level of war and describes its characteristics. Finally, it examines and defines operational intelligence.

Intelligence

There is no consensus definition of the kind of intelligence that relates to security. As one author noted, "Intelligence holds distinct meanings for different people."[6] The historian Walter Laqueur cautioned, "[A]ll attempts to develop ambitious theories of intelligence have failed."[7] With these warnings in mind, we proceed judiciously toward a functional definition of intelligence.

"Intelligence is information," claim some scholars.[8] While valid, this definition is incomplete. Intelligence is both a subset of information, and something qualitatively different. First, not all information is

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[5] The author finds the levels of war a rigid and hierarchical framework that, when it is applied to reality, becomes inadequate quickly. The author prefers a more abstract distinction between tactics and strategy provided by Colin Gray when he wrote, "Namely, whereas tactics is the realm of the actual employment of armed forces, strategy refers to the intended or real consequences of the use of forces for the course and outcome of a war." Between strategy and tactics exists the operational art which Justin Kelly and Mike Brennan described as "a continuous conversation between strategic ends, i.e., that which is to be achieved; and tactical means, i.e., that which is to be done." At which level of the state and military bureaucracy strategy and operational art occurs depends on the circumstance. Similarly, context determines the scope and richness of the operational art. However, because the levels of war construct is more straightforward and well-known, it offers a useful device for conceptualizing the intermediary realm between strategy and tactics and allows this project to proceed. The levels of war, therefore, serve the purpose of this project. See Colin S. Gray, *Explorations in Strategy* (Westport, CT: Praeger, 1998), 61; and, Justin Kelly and Mike Brennan, *Alien: How Operational Art Devoured Strategy* (Carlisle, PA: Strategic Studies Institute, 2009), 7-8.

[6] Melanie M.H. Gutjahr, *The Intelligence Archipelago: The Community's Struggle to Reform in a Globalized Era* (Washington, DC: Center for Strategic Intelligence Research, 2005), 7.

[7] Walter Laqueur, *A World of Secrets: The Uses and Limits of Intelligence* (New York, NY: Basic Books, 1985), 8.

[8] Bruce D. Berkowitz and Allan E. Goodman, *Best Truth: Intelligence in the Information Age* (New Haven, CT: Yale University Press, 2000), x.

intelligence.[9] Carl von Clausewitz, for example, referred to a specific kind of information: "By 'intelligence' we mean every sort of information about the enemy and his country...."[10] Clausewitz provided context by placing intelligence in the same discourse as politics, war, and strategy. He also narrowed our concern to the adversary and the potential battlespace. Intelligence is information of a specific kind. But it is also far more than that.[11]

What, then, is intelligence? Sherman Kent, perhaps the preeminent American intelligence expert, in his 1949 book *Strategic Intelligence for American World Policy,* identified three aspects of intelligence: knowledge, activity, and organization.[12] Summarizing Kent, one author wrote, "[Intelligence is] a particular kind of knowledge, the type of organization producing this knowledge, and the activity pursued by the organization."[13] Such knowledge encompasses more than the mere possession of data and it is the result of concerted bureaucratic processes. Most subsequent scholarship either explicitly or implicitly incorporates Kent's framework.

Recent scholarship on intelligence offers more descriptive definitions. For example, Mark Lowenthal's *Intelligence: From Secrets to Policy,* a fixture of contemporary intelligence studies, contended that intelligence is, "...the process by which specific types of information important to national security are requested, collected, analyzed, and provided to policy makers; the products of that process; the safe-guarding of these processes and this information by counterintelligence

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[9] Mark M. Lowenthal, *Intelligence: From Secrets to Policy*, 4th Edition (Washington, DC: CQ Press, 2009), 1.

[10] Carl von Clausewitz, *On War*, edited by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press), 117.

[11] Michael Warner, "Wanted: A Definition of Intelligence," *Studies in Intelligence* 46, no. 3 (2002), 17.

[12] Sherman Kent, *Strategic Intelligence for American World Policy,* 2nd Edition (Princeton, NJ: Princeton University Press, 1966), xxv.

[13] Michael Herman, *Intelligence Services in the Information Age: Theory and Practice* (Portland, OR: Frank Cass, 2001), 3.

activities; and the carrying out of operations as requested by lawful authorities."[14] Lowenthal's definition provides depth and breadth. Regarding the former, he adds helpful detail to the process. The expansion, however, is unnecessary on two accounts. First, although counterintelligence is crucial, it is an ancillary function. Second, the catch-all phrase regarding lawful operations—an allusion to covert action—distracts us from the meaning of intelligence. It implies that intelligence is what intelligence organizations do, which is both tautological and unsatisfying. A final critique is that Lowenthal's identification of policy makers as the singular set of intelligence consumers reveals his particular focus on the highest level of national security. Nonetheless, we should carry forward his emphasis on process and product.

The US armed forces' definition of intelligence extends beyond the national level. Joint Publication (JP) 2-0 reads, "[Intelligence is the] product resulting from the collection, processing, integration, evaluation, analysis, and interpretation of available information concerning foreign nations, hostile or potentially hostile forces or elements, or areas of actual or potential operations. The term is also applied to the activity which results in the product and to the organizations engaged in such activity."[15] Careful readers will notice similarities between this definition and those from Clausewitz (potential adversaries and battlespace), Kent (knowledge, activity, organization), and Lowenthal (disaggregated process and resultant product). In contrast to Lowenthal, however, JP 2-0 does not limit the consumption of intelligence to policy makers, nor does it mention counterintelligence or covert action.

While detailed definitions can be instructive, they are also often unwieldy. Alternatively, Michael Warner, in an article for the Central Intelligence Agency (CIA) entitled "Wanted: A Definition of Intelligence,"

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[14] Lowenthal, *Intelligence: From Secrets to Policy*, 8.
[15] *Joint Publication 2-0: Joint Intelligence* (22 June 2007), GL-11.

reduced the concept to "…secret, state activity to understand or influence foreign entities."[16] Warner's elegant offering moves us closer to our goal. That intelligence is "performed by officers of the state for state purposes" warrants it official sanction.[17] To understand is its core function. And, identifying the subject of attention as foreign entities distinguishes intelligence from law enforcement or other domestic security activities. The term foreign entities is less restrictive than what Clausewitz used when he focused our gaze on the enemy. However, the breadth of Warner's definition, like that of Lowenthal's, suggests that he sought to encompass all CIA activities as much he aimed to distill the essence of intelligence.

Three necessary modifications to Warner's definition refine the concept. First, we can remove the adjective secret. Warner argued at length that "secrecy is the key to the definition of intelligence" and concluded that conceptualizing intelligence as clandestine distinguishes it from "other intellectual activities."[18] His point has merit. However, it is also overly restrictive. Much intelligence is collected overtly; bounding it to the secret realm risks excluding lucrative and inseparable surveillance, reconnaissance, and open-source collection activities.[19] Furthermore, the imperative to share intelligence coupled with the proliferation of coalition operations sometimes places traditional intelligence activities and products outside the formerly rigid lines of secrecy. Because intelligence is a state activity, the process and product very well may be kept secret. Then again, they may not be.

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[16] Warner, "Wanted: A Definition of Intelligence," 19.

[17] Warner, "Wanted: A Definition of Intelligence," 19.

[18] In Warner, "Wanted: A Definition of Intelligence," 18, quoting Abram N. Shulsky, *Silent Warfare: Understanding the World of Intelligence*, 3rd Edition (Washington, DC: Brassey's, 2002), 1-3.

[19] Kent makes a similar point in Kent, *Strategic Intelligence for American World Policy*, 152; also see David Deptula and Greg Brown, "A House Divided: The Indivisibility of Intelligence, Surveillance, and Reconnaissance," *Air & Space Power Journal* 22, no. 2 (Summer 2005), 5-15.

The second adjustment to Warner's definition involves omitting the verb "to influence." Its inclusion confuses intelligence with activities designed to shape the outcome of events directly. Not every activity performed by an intelligence organization constitutes intelligence.[20] Expedience may place targeted killings, sabotage, or psychological operations within the purview of an intelligence agency.[21] However, these missions lay outside the central function of intelligence—to understand.

The Warner definition's third shortcoming is its omission of the spatial element. As previously noted, Clausewitz valued knowing the geography of potential battlegrounds. Modern warfare similarly benefits from awareness of the operational environment. Both entities and spaces are viable intelligence targets.

The final piece missing from our definition is the purpose of intelligence. To what end? Robert Bowie, a former Harvard professor who also served both as Assistant Secretary of State for policy planning and in the CIA, proposed that intelligence was "knowledge and analysis designed to assist action."[22] R.V. Jones, in his work "Intelligence and Command," concurred with Bowie when he wrote, "The ultimate object of

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[20] Admittedly, Executive Order (EO) 12333 seemingly contradicts this assertion by defining intelligence activities as "all activities that agencies within the intelligence community are authorized to conduct pursuant to this Order." However, this author contends that there remains a difference between intelligence and the overarching and legally necessary term intelligence activities. See paragraph 3.5(g) of EO 12333 at *Central Intelligence Agency: Executive Order 12333,* July 31, 2008, accessed March 21, 2011, https://www.cia.gov/about-cia/eo12333.html.

[21] Among the fascinating unclassified histories of the CIA, this author found useful Thomas Powers, *Intelligence Wars: American Secret History from Hitler to al-Qaeda* (New York, NY: New York Review Books, 2002); Stansfield Turner, *Burn Before Reading: Presidents, CIA Directors, and Secret Intelligence* (New York, NY: Hyperion, 2005); Allen Dulles, *The Craft of Intelligence: America's Legendary Spy Master on the Fundamentals of Intelligence Gathering for a Free World* (Guilford, CT: The Lyons Press, 2006); and E. Howard Hunt, *American Spy: My Secret History in the CIA, Watergate, and Beyond* (Hoboken, NJ: John Wiley & Sons, Inc., 2007).

[22] Ernest R. May, "Introduction," in *Knowing One's Enemies: Intelligence Assessment Before the Two World Wars,* edited by Ernest R. May (Princeton, NJ: Princeton University Press, 1984), 3.

intelligence is to enable action to be optimized."[23] Similarly, the prominent intelligence historian David Kahn concluded that the purpose of intelligence was to enable the efficient use of resources.[24] The use of resources is a function of the action to be taken; the nature of the action depends on circumstance, including the customer of the intelligence.

Thus, a refinement of the contributions described above produces the following working definition: *Intelligence is state activity to understand foreign entities and potential battlespaces for the purpose of informing action.[25]*

The Operational Level of War

Understanding intelligence specifically at the operational level of war requires a brief description of what is meant by the operational level of war. The intermediate perspective of military activity between the strategic and the tactical appeared with the massive expansion of armies brought about by the French Revolutionary *levée en masse* and the industrial revolution.[26] Previously, sovereigns had accompanied their forces in limited conflicts, personally guiding the employment of force toward political objectives.[27] The nationalization and industrialization of war distanced policymakers from the battlefield and increasingly shifted the burden of connecting politics, strategy, and tactics to the soldier.[28]

The operational level of war is relatively new to American military discourse.[29] Some scholars trace the early emergence of the tri-fold

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[23] R.V. Jones, "Intelligence and Command," in *Leaders and Intelligence,* edited by Michael I. Handel (Totowa, NJ; Frank Cass, 1989), 288.
[24] David Kahn, "An Historical Theory of Intelligence," in *Intelligence Theory: Key Questions and Debates,* edited by Peter Gill, Stephen Marrin, and Mark Pythian (New York, NY: Routledge, 2009), 8.
[25] The author prefers the domain-neutral term space because it accommodates all potential "fields" of battle.
[26] Kelly and Brennan, *Alien,* 11.
[27] Kelly and Brennan, *Alien,* 11.
[28] Kelly and Brennan, *Alien,* 12.
[29] Richard Simpkin, *Deep Battle: The Brainchild of Marshal Tukachevskii* (McLean, VA: Pergamon-Brassey's International Defense Publishers, 1987), x.

stratification of war to Clausewitz's war plans, strategy, and tactics.[30] Baron Antoine-Henri Jomini's *Art of War* identified six branches of Napoleonic war, including strategy, grand tactics, and minor tactics.[31] By the end of the 19th century, the German General Sigismund von Schlichting was among the first to recognize the emergence from industrial-age warfare of what we now call operational art.[32] In the 1930s, Soviet Marshal Mikhail Tukhachevskii more fully developed the operational level with his "deep battle" concept and "deep operation theory."[33] Meanwhile, Anglo-American military thinkers overlooked this middle level of war. The British strategic thinker Sir B.H. Liddell Hart, for example, set grand strategy above strategy, and strategy directly above tactics without distinguishing the operational realm.[34] Post-World War II American strategists found little need for operational art in an era of material superiority and nuclear arms. Thus, the operational level of war—what Edward Luttwak called "the level that is most salient in the modern tradition of military thought in continental Europe"—remained absent from American military doctrine until the 1980s.[35]

Today, the operational level of war figures prominently in American military thought. Joint Publication 3-0 defines the levels of war as:

> Strategic Level - [T]hat level at which a nation, often as a member of a group, determines national or multinational (alliance or coalition) strategic security objectives and

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[30] Harold R. Winton, "Strategy, Operational Art, & Tactics: A Historical Perspective," lecture presented at the School of Advanced Air & Space Studies, Maxwell AFB, AL, August 2010. Winton observed how Clausewitz's understanding of strategy aligns with contemporary concepts of operational art. See also Clausewitz, *On War*, 128, 177, 358, 577.

[31] Antoine-Henri Jomini, *The Art of War,* translated by G.H. Mendell and W.P. Craighill (Mineola, NY: Dover Publications, 2007), 11.

[32] Donald Cranz, "Understanding Change: Sigismund von Schlichting and the Operational Level of War," Unpublished Monograph (Ft. Leavenworth, KS: School of Advanced Military Studies, May 1989), 10.

[33] Simpkin, *Deep Battle: The Brainchild of Marshal Tukachevskii* , x-xi, 35.

[34] B.H. Liddell Hart, *Strategy,* 2nd Revised Edition (New York, NY: Meridian Printing, 1991), 321-323.

[35] Edward N. Luttwak, "The Operational Level of War," *International Security* 5, no. 3 (Winter 1980-1981), 61.

guidance and develops and uses national resources to accomplish these objectives.[36]

Operational Level - [That level which] links the tactical employment of forces to strategic objectives. ... The focus at this level is the operational art – the use of military forces to achieve strategic goals through the design, organization, integration, and conduct of strategies, campaigns, major operations, and battles. Operational art determines when, where, and for what purpose major forces will be employed....[37]

Tactical Level - Tactics is the employment of units in combat. It includes the ordered arrangement and maneuver of units in relation to each other and/or to the adversary in order to use their full potential. An engagement is normally short in duration and fought between small forces....[38]

Several characteristics distinguish the operational level. First, it is removed from the political agency that resides at the level of strategy. Similarly, it is also distinct from the actual employment of forces which occurs at the tactical level. Third, the operational level spatially extends beyond the tactical engagement but is less than global, and often stops shy of the international boundaries that begin to demark the strategic. Fourth, the temporal element sandwiches the operational level between the immediate and the enduring.

Fifth, there is something distinctly military about the operational level. This does not mean non-military factors are irrelevant, e.g., politics, economics, demographics, etc. It means only that, almost by definition, there is a significant martial characteristic to this level of war. In regular war, politics (national and international) and the coordination of non-military instruments occur primarily in the strategic realm, which constitutes the upper bound of the operational level. In irregular war

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[36] *Joint Publication 3-0: Joint Doctrine for Operations* (10 September 2001), II-2.
[37] JP 3-0, II-2.
[38] JP 3-0, II-3.

such coordination may be less distinguishable from operational-level military activities.

Finally, at its most abstract, the operational stratum is connective. It exists between and links together tactical effects and the strategic purpose, overlapping with and assuming characteristics of both. This linkage stretches operational commanders across all three levels of war as they bridge the strategic and tactical. They must be familiar with the particular dynamics of their own intermediate perspective. However, in addition to participating in the development of military strategy and leading planning, they must also be capable of both guiding battles and advising the formulation of policy and national strategy. Commanders at the operational level must be equally comfortable with the tactical and strategic. Consequently, so must their intelligence.

Operational Intelligence

Gradual appreciation of a distinct category of operational intelligence followed the emergence of an operational level of war. Previously, as Dennis Showalter explored in his analysis of intelligence prior to World War I, operational intelligence meant "securing knowledge of the movements, capacities and intentions of other armed forces" and was indivisible from the skillful scouting performed by light cavalry units. [39] Operational intelligence was tactical reconnaissance writ large.[40]

This conception of operational intelligence slowly expanded over time. American doctrine now trifurcates intelligence in conjunction with the levels of war:

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[39] Dennis E. Showalter, "Intelligence on the Eve of Transformation," in *The Intelligence Revolution: A Historical Perspective*, edited by Lt Col Walter T. Hitchcock (Washington, DC: U.S. Government Printing Office, 1991), 16-17; also see Deptula and Brown, "A House Divided," 5-15.
[40] Showalter, "Intelligence on the Eve of Transformation," 17.

Strategic Intelligence - Intelligence required for the formation of policy and military plans at national and international levels.[41]

Operational Intelligence - Intelligence that is required for planning and conducting campaigns and major operations to accomplish strategic objectives within theaters or operational areas. [42]

Tactical Intelligence - Intelligence required for the planning and conduct of tactical operations.[43]

However, not all scholarship recognizes or accurately depicts the intermediate level. Much of the literature still dichotomizes intelligence into the tactical and strategic. Melanie Gutjahr, author of *The Intelligence Archipelago*, provides an example:

Generally, intelligence has been placed into two categories—tactical and strategic. This delineation was driven primarily by the principal consumer—military commanders or policymakers. Operational (tactical) intelligence is knowledge about the immediate situation and is based almost entirely on straightforward observation. Strategic intelligence has a wider base and broader objective, integrating economics, politics, social studies, and the study of technology. Strategic intelligence provides policymakers with the "big picture" whereas tactical intelligence provides the "front yard" view. The main difference between strategic and tactical warning is the time horizon.[44]

This passage depicts strategic and tactical intelligence with some accuracy. Strategic intelligence, like the strategic level of war, is "big picture" and dominated by the policymaker. It is, as Kent explained, "the

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[41] *Joint Publication 2-0: Joint Intelligence* (22 June 2007), GL-16.

[42] JP 2-0, GL-15.

[43] JP 2-0, GL-16.

[44] Gutjahr, *The Intelligence Archipelago,* 8. In making her argument, Gutjahr cites Bruce D. Berkowitz and Allan E. Goodman, *Strategic Intelligence for American Security* (Princeton, NJ: Princeton University Press, 1989), 4. This author takes exception only with Gutjahr's characterization of operational intelligence and finds useful many aspects of her project's assessment of intelligence reform.

knowledge upon which we base our high-level national policy toward the other states of the world."[45] Meanwhile, tactical intelligence exists in the realm of combat force employment. In their book on ancient Roman intelligence, N. J. R. Austin and N. E. Rankov described tactical intelligence as addressing "…the immediate problem of how to find the enemy and face them in operations once hostilities have broken out…."[46] However, by overlooking the operational level of war, Gutjahr and others conflate operational and tactical intelligence. Tactical intelligence is near, immediate and straightforward; practitioners know operational intelligence cannot be so limited.

Michael I. Handel, in his book on the subject, described operational intelligence as "intelligence in war and military operations."[47] Clausewitz, who wrote extensively on what we today label the operational level of war, called intelligence "…the basis, in short, of our plans and operations."[48] Operational intelligence informs the military commander's alignment of tactical employment with strategic objectives in a given area. It also facilitates the conduct of subsequent operations.[49] Within its purview is all that relates to the commander's mission and area of responsibility: the near and far; the immediate and future; the tactical and strategic. Perhaps then-Major Ronald Burgess captured it best when he wrote, "Operational intelligence is more or less the fusion of

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[45] Kent, *Strategic Intelligence for American World Policy*, 3.
[46] N.J.E. Austin and N.B. Rankov, *Exploratio: Military and political intelligence in the Roman world from the Second Punic War to the battle of Adrianople* (New York, NY: Routledge, 1995), 39.
[47] Michael I. Handel, "Intelligence and Military Operations," in *Intelligence and Military Operations*, edited by Michael I. Handel (Portland, OR: Frank Cass, 1990), 1.
[48] Clausewitz, *On War*, 117.
[49] Donald MacLachlan, "Intelligence: The Common Denominator", in Michael Eliot Bateman (ed.), *The Fourth Dimension of Warfare: Vol. I: Intelligence, Subversion, Resistance* (New York, NY: 1970), 53-54; R.V. Jones, "Intelligence and Command" in Michael I. Handel (ed.), *Leaders and Intelligence* (Totowa, NJ; Frank Cass, 1989), 288.

tactical and strategic intelligence to respond to operational requirements."[50]

Finally, operational intelligence, like the operational level of war, has a distinctive military character. However, operational intelligence is not synonymous with military intelligence for two reasons. First, military intelligence may exist at the strategic, operational, or tactical levels of war; whereas, operational intelligence is, by definition, intelligence at the operational level of war. Second, depending on the conflict's circumstances, operational intelligence may not be restricted to military sources or the analysis of military professionals. Increasingly, and most evidently in irregular war, military and non-military intelligence entities collaborate on challenges at all levels of war. Thus, operational intelligence is not limited to military activity.

Conclusion

Building on the earlier definition of intelligence, *operational intelligence is state activity to understand foreign entities and potential battlespaces for the purpose of planning and conducting campaigns and major operations; perforce, it must also include some consideration of strategy and tactics.* The quest for understanding is elusive, especially in war. How it is pursued is the practice of intelligence and the topic of Chapter Two.

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[50] Ronald L. Burgess, "Operational Intelligence: Is it a Panacea?" Unpublished Monograph (Ft. Leavenworth, KS: School of Advanced Military Studies, 21 April 1987), 8.

Chapter 2

The Practice of Operational Intelligence

Therefore I say: 'Know the enemy and know yourself; in a hundred battles you will never be in peril. When you are ignorant of the enemy but know yourself, your chances of winning or losing are equal. If ignorant both of your enemy and yourself, you are certain in every battle to be in peril.'

Sun Tzu

Finally, the general unreliability of all information presents a special problem in war: all action takes place, so to speak, in a kind of twilight, which like fog or moonlight, often tends to make things seem grotesque and larger than they really are.

Clausewitz

The effective practice of operational intelligence is a complicated endeavor upon which military success frequently hinges. Accomplishing Sun Tzu's timeless imperative to understand the enemy and oneself is seldom straightforward.[1] Everything in war is difficult, including intelligence.[2] Carl von Clausewitz observed that the frictions of war obscure visibility in it like a fog distorts reality.[3] Sun Tzu acknowledged the complexity of war when he wrote, "…Now in war there may be one hundred changes in each step."[4] Discerning the intent, or even actions, of an uncooperative foe requires great skill, effort, and often luck.

Because clarity in war is so difficult, the side that achieves it relative to the other garners a distinct advantage. Many accounts of

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[1] Sun Tzu, *The Illustrated Art of War*, translated by Samuel B. Griffith, New York, NY: Oxford University Press, 2005), 125.
[2] Carl von Clausewitz, *On War*, edited by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press), 119.
[3] Clausewitz, *On War* , 140.
[4] Sun Tzu, *The Illustrated Art of War*, 124.

intelligence-enabled success in combat exist.[5] Even intelligence
failures—surprises—underscore how crucial understanding in war is.[6] It
can arguably be decisive.[7] So, how is such advantage pursued?

This chapter examines the practice of operational intelligence
using its most essential elements. It begins by sketching the purposes,
consumers, processes, and products of operational intelligence. It then
considers the two most central functions of intelligence operations—
collection and analysis. The chapter concludes that the acquisition of
information and its transduction into knowledge are the basic activities
of intelligence that support subordinate elements, planners, and
commanders.

Deconstructing Operational Intelligence

The previous chapter concluded that operational intelligence is
state activity to understand foreign entities and potential battlespaces for
the purpose of planning and conducting campaigns and major
operations; perforce, it must also include some consideration of strategy
and tactics. The purposes, consumers, products, and processes of
operational intelligence derive from this definition.

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[5] Several useful accounts of intelligence-enabled success are recorded in David Kahn, *The Codebreakers: The Story of Secret Writing.* (New York, NY: MacMillan Publishing Co., Inc., 1967); Walter T. Hitchcock, ed., *The Intelligence Revolution: A Historical Perspective*, Proceedings of the Thirteenth Military History Symposium, US Air Force Academy (Washington, DC: US Government Printing Office, 1988); Michael I. Handel, ed., *Leaders and Intelligence* (Totowa, NJ: Frank Cass, 1989); Michael I. Handel, ed., *Intelligence and Military Operations.* (Portland, OR: Frank Cass, 1990); Jeffrey H. Norwitz, "Leveraging Operational Intelligence: The Battle of Tannenberg and Masurian Lakes, 1914," Unpublished Monograph (Newport, RI: Naval War College, 14 May 2001); and Gregory Elder, "Intelligence in War: It Can Be Decisive," *Studies in Intelligence* 50, no. 2 (2006).

[6] This point is made precisely by Gregory Elder in "Intelligence in War: It Can Be Decisive"; for examples of intelligence shortfalls, see John Hughes-Wilson, *Military Intelligence Blunders* (New York, NY: Carrol & Graf Publishers, 1999); John Keegan, *Intelligence in War: The Value—and Limitations—of What the Military Can Learn About the Enemy* (New York, NY: Vintage Books, 2002); and Freeman Dyson, "A Failure of Intelligence: Operational Research at RAF Bomber Command, 1943-1945," *Technology Review* 109, no. 5 (November/December 2006).

[7] Elder, "Intelligence in War: It Can Be Decisive."

The ultimate purpose of intelligence is to optimize resources and action.[8] It informs strategies, campaigns, operations, and battles. Joint doctrine elaborates:

> The purposes of joint intelligence that guide the intelligence directorate of a joint staff (J-2) and those of supporting organizations are: inform the commander; identify, define, and nominate objectives; support the planning and execution of operations; counter adversary deception and surprise; support friendly deception efforts; and assess the effects of operations on the adversary.[9]

Three consumers emerge from this description: the commander, the planner, and the subordinate elements. Each is important. However, the commander—the key military decisionmaker—is crucial. Commanders drive planning and execution. According to Michael Handel in "Leaders and Intelligence," intelligence supports the commander by supplying the information necessary to reach a decision, then by assessing the outcome of that decision.[10] Commanders and Directors of Intelligence together develop priority intelligence requirements (PIRs), the questions that guide subsequent collection and analytical efforts.[11] Strategic and operational-level assessments focus on the command's overall effectiveness in accomplishing high-level and intermediate objectives, while tactical assessments scrutinize performance measures.[12]

Intelligence support to planning occurs throughout the planning process. The development of concepts and plans relies on timely

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[8] David Kahn, "An Historical Theory of Intelligence," in *Intelligence Theory: Key Questions and Debates*, edited by Peter Gill, Stephen Marrin, and Mark Pythian (New York, NY: Routledge, 2009), 8; R.V. Jones, "Intelligence and Command," in *Leaders and Intelligence,* edited by Michael I. Handel (Totowa, NJ; Frank Cass, 1989), 288.

[9] *Joint Publication 2-0: Joint Intelligence* (22 June 2007), ix.

[10] Handel, "Leadership and Intelligence," in *Leaders and Intelligence,* edited by Michael I. Handel (Totowa, NJ; Frank Cass, 1989), 9.

[11] JP 2-0, I-8, IV-6.

[12] JP 2-0, IV-19-24.

information and robust analytical estimates that assess the operational environment, adversary capabilities, and enemy courses of action. The intelligence officer also develops concurrently an intelligence concept of operations and plan to support the successful execution of the commander's overarching plan.[13] Furthermore, as the plan is executed, continual assessments help refine subsequent planning and identify for planner consideration previously unforeseen opportunities and vulnerabilities.

Joint Publication (JP) 2-0, *Joint Intelligence*, asserts, "Intelligence support is crucial to all aspects of execution."[14] Execution is a wide-ranging activity that includes mobilization, deployment, employment, sustainment, redeployment and demobilization efforts throughout all phases of operations.[15] Facilitating the action of subordinate elements is multi-faceted and demands significant resources.

For example, because targeting approval authority is often retained by operational level commanders, their intelligence officers control the otherwise tactical discipline of target intelligence. The heavy volume of requirements generated during the execution of operations stresses most intelligence organizations. Consequently, intelligence officers spend significant energy orchestrating persistent and dynamic sensors to enable shared situational awareness (current intelligence) and target development (target intelligence) for tactical forces executing their missions.

Intelligence also supports the commander during an operation's execution. According to JP 2-01, *Joint and National Intelligence Support to Military Operations*, "Commanders use intelligence to anticipate the

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[13] JP 2-0, IV-7-9.
[14] JP 2-0, IV-10.
[15] JP 2-0, IV-10-11.

battle, visualize and understand the full spectrum battlespace, and influence the outcome of operations."[16]

The various responsibilities of operational intelligence require a range of products in the form of advice, estimates, assessments, and plans.[17] JP 2-0 categorizes these by their purpose: indications and warning (I&W); current; general military; target; scientific and technical; counter-intelligence; and estimative intelligence.[18] Generally, longer-term estimates support commanders and planners, while more immediate awareness and targeting intelligence services subordinate elements. However, product relevance for each consumer varies with circumstance.

Directors of intelligence employ a functional process to provide consumers required support and products. Intelligence professionals learn the six interrelated categories of the intelligence operations model: planning and direction, collection, processing and exploitation, analysis and production, dissemination and integration, and evaluation and feedback.[19] Each stage is vital. However, two activities comprise the bulk of intelligence operations—collection and analysis. [20]

Collection: Illuminating the Battlespace

Collection is, arguably, the main activity of intelligence.[21] It is the sensing of the surrounding world, the figurative act of peering into fog-enshrouded battlespace. Sherman Kent called collection "the surveillance operation" by which something or someplace "is put under

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[16] *Joint Publication 2-01, Joint and National Intelligence Support to Military Operations (7 October 2004), xi.*

[17] For a list of J-2 responsibilities, see JP 2-0, III-15.

[18] JP 2-0, I-16.

[19] JP 2-0, I-7.

[20] Sherman Kent, *Strategic Intelligence for American World Policy,* 2nd ed. (Princeton, NJ: Princeton University Press, 1949/1966), 4; Richard K. Betts, "Analysis, War, and Decision: Why Intelligence Failures are Inevitable," *World Politics* 31, no. 1 (Oct 1978), 61; and Michael Herman, *Intelligence Services in the Information Age: Theory and Practice* (Portland, OR: Frank Cass, 2001), 4.

[21] Herman, *Intelligence Services in the Information Age*, 4.

close and systematic observation."[22] It is the surveillance and reconnaissance portion of the contemporary acronym ISR.[23] Collection is, in essence, the acquisition of information.

Collection systems offer obvious military advantages. Ancient armies employed agents, deployed scouts, and intercepted messages in their quest for understanding.[24] Military services still do. As man took to the air, and later space, so did their intelligence sensors.[25] Information-age systems of systems now provide significant battlespace awareness; for some techno-optimists, perfect knowledge is inevitable.[26] Until then, intelligence professionals must balance information requirements with available collection assets.

Collection managers aim to acquire data that implements their collection plan.[27] That plan aggregates requirements from various consumers—the commander, planners, and tactical forces. PIRs, the intelligence subset of the commander's critical information requirements,

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[22] Kent, *Strategic Intelligence for American World Policy,* 4.
[23] David Deptula and Greg Brown, "A House Divided: The Indivisibility of Intelligence, Surveillance, and Reconnaissance," *Air & Space Power Journal* 22, no. 2 (Summer 2008), 5-7.
[24] For some ancient examples of military intelligence, see Herodotus, *The Histories*, translated by Robert Waterfield (New York, NY: Oxford University Press, 1998), 315-316; Thucydides, *The Landmark Thucydides: A Comprehensive Guide to the Peloponnesian War*, edited by Robert S. Strassler (New York, NY: Simon & Schuster, 1998), 58-59; N.F.E. Austin and N.B. Rankov, *Exploratio: Military and Political Intelligence in the Roman World from the Second Punic War to the Battle of Adrianople* (New York, NY: Routledge, 1995), 246; John Arquilla and David Ronfeldt, "Cyberwar is Coming!" *Comparative Strategy* 12, no. 2 (Spring 1993): 152-155; David Kahn, *The Codebreakers: The Story of Secret Writing* (New York, NY: Macmillan Publishing Co., Inc., 1967), 71-80.
[25] For accounts of early air- and space-borne intelligence collection, see Antoine-Henri Jomini, *The Art of War*, translated by Capt G.H. Mendell and Lt W.P. Craighill (Mineola, NY: Dover Publications, Inc., 2007), 251; Peter Maslowski, "Military Intelligence Sources during the American Civil War: A Case Study," in *The Intelligence Revolution: A Historical Perspective*, edited by Lt Col Walter T. Hitchcock (Washington, DC: U.S. Government Printing Office, 1991), 50; Lee Kennett, *The First Air War: 1914-1918* (New York, NY: The Free Press, 1991), 7, 18; Kevin C. Ruffner, ed., *CORONA: America's First Satellite Program* (Washington, DC: Center for the Study of Intelligence, 1995); Pat Norris, *Spies in the Sky: Surveillance Satellites in War and Peace* (New York, NY: Praxis Publishing Limted, 2008).
[26] Owens, "The Emerging System of Systems," 15; Libicki, "DBK and its Consequences," 28.
[27] JP 2-0, I-14.

articulate questions commanders and planners have about the enemy and operational environment.[28] PIRs are products of operational decision making and planning processes and are typically linked directly to decision points identified in the plan.[29] Additionally, subordinate forces submit collection requirements to facilitate tactical planning and execution.[30]

A variety of sensors are available for collection activities, depending on resources and circumstance. JP 2-0 categorizes collection means into the categories of human; geospatial, i.e., imagery and cartography; signals, i.e., communications, electronic, etc.; measurement and signature; open-source; and technical intelligence.[31] As well, so-called non-traditional ISR assets may be available to perform surveillance or reconnaissance tasks similar to scouts throughout history. Understanding the relative merits of each sensor is the duty of professionals who seek to optimize the use of collection resources.

Collection managers at the operational level must also consider which capabilities are available for direct employment and which remain controlled at higher or lower levels of command.[32] It is a peculiar characteristic of the American operational-level joint command that it may control few intelligence collection assets directly. Requirements for collection using national-level capabilities are prioritized within the Combatant Commander's headquarters before adjudication at the national level.[33] Conversely, because service doctrine shapes the presentation of component forces to the joint commander, control over

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[28] JP 2-0, I-8.
[29] JP 2-01, II-2; Marc A. Spinuzzi, "CCIR for Complex and Uncertain Environments", Unpublished Monograph (Ft. Leavenworth, KS: School of Advanced Military Studies, 01 May 2007), 18-22.
[30] JP 2-0, I-10.
[31] JP 2-0, I-6.
[32] JP 2-01, III-13.
[33] Collection management responsibility for worldwide military requirements of national-level assets rests with the Defense Intelligence Operations Coordination Center (DIOCC) at the Defense Intelligence Agency. The DIOCC advocates military requirements within the intelligence community.

the majority of ISR assets may be retained by lower-echelon commanders to facilitate tactical operations.[34] Those collection assets made available for operational-level tasking are managed through the Joint Collection Management Board.

Prior to and during combat operations, intelligence directors manage the competition for limited collection assets. There is constant tension between satisfying the campaign requirements, i.e, commander's PIRs, and facilitating the operations of subordinate elements. Collection managers prioritize requirements and match the optimal sensors with the essential elements of information that are derived from each requirement.[35] This ordering manifests itself on the Joint Intelligence Prioritized Collection List.

Intelligence collection strives to reduce uncertainty by illuminating the battlespace. However, collection is only one intelligence activity. Converting observations into knowledge is the enterprise of analysis. For intelligence to function effectively, collection and analysis must be tightly coupled.[36]

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[34] The advantages and disadvantages of each service's philosophy on the control of ISR assets are beyond the scope of this paper. The necessary point is that joint directors of intelligence, on behalf of their joint commanders, must manipulate various levers to task and synchronize the collection of intelligence requirements. For more on the individual service doctrines, see discussion on intelligence in the modular force in Field Manual 2-0, *Intelligence* (Headquarters Department of the Army, 23 March 2010), 2-6. Navy doctrine similarly conceptualizes the employment of intelligence assets as organic capabilities that facilitate maritime operations; however, it does refer, albeit ambiguously, to both "top down and bottom up intelligence support." See Naval Doctrine Publication 2, *Naval Intelligence* (Undated), 38. Air Force doctrine explicitly broaches the collection operations management control by joint authorities of air component ISR assets in Air Force Doctrine Document 2-9, *Intelligence, Surveillance, and Reconnaissance Operations* (Secretary of the Air Force, 17 July 2007), 39-46.

[35] JP 2-0, I-9.

[36] William P. Bundy, "The Guiding of Intelligence Collection," *Studies in Intelligence* 3, no. 1 (Winter 1959), 37-53; Shlomo Gazit, "Estimates and Fortune-Telling in Intelligence Work," International *Security* 4, no. 4 (Spring 1980), 40-41; James B. Bruce,"The Missing Link: The Analyst-Collector Relationship," in *Analyzing Intelligence: Origins, Obstacles, and Innovations*, edited by Roger Z. George and James B. Bruce (Washington, DC: Georgetwon University Press, 2008), 206; for more on feedback loops and system coupling, see Charles Perrow, *Normal Accidents: Living with High-Risk Technologies* (Princeton, NJ: Princeton University Press, 1999), 62-100.

Analysis: Thinking Through the Fog

Analysis is the development of knowledge from collected information.[37] It is the "thinking part of the intelligence process."[38] Kent referred to it as research, which he argued was the attempt to ascertain meaningful patterns from past and present observations.[39] Joint doctrine calls it the process by which intelligence is produced.[40] While collection often comprises the majority of effort, the analytical function is most central to intelligence. As one scholar averred, "Analysts and analysts alone create intelligence."[41]

Like collection, analysis is as old as war. The limited scale of ancient warfare made the commander's intuition sufficient to his analytical needs.[42] As the size of armies and warfare increased, analytical requirements outgrew the capacity of a single mind.[43] Permanent organizations of specialized analysts developed at every level

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[37] Charles A. Mangio and Bonnie J. Wilkinson, "Intelligence Analysis: Once Again," Unpublished Manuscript AFRL-RH-WP-TP-2010-0006 (Wright-Patterson AFB, OH: Air Force Research Laboratory, 2008), 3.

[38] James B. Bruce and Roger Z. George, "Intelligence Analysis—The Emergence of a Discipline," in *Analyzing Intelligence: Origins, Obstacles, and Innovations*, edited by Roger Z. George and James B. Bruce (Washington, DC: Georgetown University Press, 2008), 1.

[39] Sherman Kent, *Strategic Intelligence for American World Policy,* 4.

[40] *Joint Publication 2-0: Joint Intelligence,* I-15.

[41] David T. Moore, *Critical Thinking and Intelligence Analysis* (Washington, DC: Center for Strategic Intelligence Research, 2006), 1.

[42] David Thomas,"U.S. Military Intelligence Analysis: Old and New Challenges," in *Analyzing Intelligence: Origins, Obstacles, and Innovations*, edited by Roger Z. George and James B. Bruce (Washington, DC: Georgetown University Press, 2008), 138; for an explanation of how intuition is analysis based on personal experience and judgment, see Malcolm Gladwell, *Blink: The Power of Thinking Without Thinking* (New York, NY: Back Bay Books, 2005); for examples and discussions on analysis by ancient commanders, see also Exodus 17:8-13; Herodotus, *The Histories*, 476-483; Julius Caesar, *Caesar's Commentaries: On the Gallic War & On The Civil War*, translated by W.A. MacDevitt (El Paso, TX: El Paso Norte Press, 2005), 7; Jay Luvaas, "Napoleon's Use of Intelligence: The Jena Campaign of 1805," in *Leaders and Intelligence*, edited by Michael I. Handel (Totowa, NJ: Frank Cass, 1989), 40-54; Victor M. Rosello, "Clausewitz's Contempt for Intelligence," in *Intelligence and the National Security Strategist: Enduring Issues and Challenges*, edited by Roger Z. George and Robert D. Kline (Lanham, MD: Rowman & Littlefield Publishers, Inc., 2006), 11-20; and Martin L. Van Creveld, *Command in War* (Cambridge, MA: Harvard University Press, 1985), 56-57.

[43] Showalter, "Intelligence on the Eve of Transformation," in *The Intelligence Revolution: A Historical Perspective*, edited by Lt Col Walter T. Hitchcock (Washington, DC: U.S. Government Printing Office, 1991), 18.

of command. By the end of World War II, Sir Harry Hinsley reflected, "Intelligence [was] unlikely ever again to return to the age of innocence—to that condition of general neglect interspersed with bursts of belated and amateur endeavor in times of crisis...."[44] Commanders must still think for themselves, but they also have come to rely on expert analysts to aid their understanding of the enemy and the operational environment.

As previously noted, analysts at the operational level of war support commanders, planners, and lower-echelon forces. Regarding the latter, facilitating tactical action is straightforward and immediate, i.e., is there a tank on the other side if this hill? Answers are precise. These questions are numerous in war; but, typically they demand little analytical depth. On rare occasions, such as the search for high-value targets, analysis to facilitate the employment of forces requires significant resources.[45] As a rule, however, analytical support to commanders and planners is more complicated than the support given to tactical forces. Theirs are the questions of knowledge on which strategies and campaigns hang.

How intelligence generates knowledge is a question of epistemology.[46] James Bruce, author of "Making Analysis More Reliable: Why Epistemology Matters to Intelligence," identified five principal ways of knowing: reference to authority; habit of thought, i.e., conventional wisdom; rationalism; empiricism; and science. Kent called this process "the instruments of reason and the scientific method" by a thoughtful

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[44] Harry Hinsley, "World War II: An Intelligence Revolution," in *The Intelligence Revolution: A Historical Perspective*, edited by Lt Col Walter T. Hitchcock (Washington, DC: U.S. Government Printing Office, 1991), 4.

[45] For one anecdote, see David A. Deptula, "Think Different," in *Armed Forces Journal* (November 2010), accessed May 10, 2011, http://armedforcesjournal.com/2010/11/4939123/.

[46] James Bruce, "Making Analysis More Reliable: Why Epistemology Matters to Intelligence," in *Analyzing Intelligence: Origins, Obstacles, and Innovations*, edited by Roger Z. George and James B. Bruce (Washington, DC: Georgetown University Press, 2008), 171.

individual.[47] Karl Popper, author of *The Logic of Scientific Discovery*, famously argued that scientific learning occurs through the refutation of hypotheses.[48] Because few things can be proven, scientists must ask the questions that can disprove a proposition. Richards J. Heuer, Jr., in his monumental *Psychology of Intelligence Analysis*, averred that rationalism, specifically deductive reasoning, dominates the practice of intelligence.[49] Thus, analysis is clearly a cognitive process.

By definition, analysis is reductive. It breaks complex subjects into smaller parts to gain understanding. To become aware of adversaries and potential battlespaces requires consideration of numerous objective and subjective factors.[50] The former are measurable, e.g., geography, climate, demographics, gross domestic product, lines of communication, location of forces, etc. While objective factors may present a collection challenge, they usually pose straightforward analytical efforts. In contrast, subjective factors are less tangible, e.g., commander's intent, force capability, population resiliency, system recuperability, cultural disposition, etc. Analyzing combinations of objective and subjective factors is the specialized, cognitive craft of intelligence professionals.

However, reductionism alone is insufficient for understanding the interconnected battlespace. Ernest May, in his conclusion to *Knowing*

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[47] Richards J. Heuer, Jr., *Psychology of Intelligence Analysis* (Washington, DC: Center for the Study of Intelligence, 1999), xiv.
[48] Karl Popper, *The Logic of Scientific Discovery* (New York, NY: Routledge Classics, 2005).
[49] Heuer, *Psychology of Intelligence Analysis*, 59-60.
[50] The importance of accurate analysis of objective and subjective conditions is discussed in the irregular warfare literature. Useful lists of factors that comprise the operational environment are in *Joint Publication 2-01.3 Joint Intelligence Preparation of the Operational Environment* (16 June 2009) and *The US Army-Marine Corps Counterinsurgency Field Manual* (Chicago, IL: University of Chicago Press, 2007), 82-113. Also see James D. Kiras, "Irregular Warfare," in *Understanding Modern Warfare*, by David Jordan, et al (Cambridge, MA: Cambridge University Press, 2008), 253; Ernesto "Che" Guevara, *Guerilla Warfare,* revised 3rd Edition (Lanham, MD: Scholarly Resources, Inc., 1997), 148-162; and Michael T. Flynn, Matt Pottinger, and Paul D. Batchelor, *"Fixing Intel: A Blueprint for Making Intelligence Relevant in Afghanistan"* (Washington, DC: Center for a New American Security, January 2010).

One's Enemies, referred to intelligence assessments as comparisons of capability that take into account the proclivities of an opponent.[51] Analysis of an adversary's capability and proclivity at the operational level of war must account for the innumerable links that exist among combinations of objective and subjective factors. Analysis must account for systems.

Peter Checkland, author of *Systems Thinking, Systems Practice*, defined a system as "the idea of a set of elements connected together which form a whole...[with] properties which are properties of the whole, rather than properties of its component parts."[52] Thus, for example, more complete understanding of the enemy and battlespace occurs when the characteristics of a specific air defense missile battery become a sub-set of knowledge about the integrated air and missile defense system (IADS); and, when the IADS is understood as part of a military command and control system; and, when the military is understood within the context of a larger political system that is inter-related with an economic system; and, when politics and economics are placed inside a larger social system. Analytical knowledge comes from understanding the relationships within and between relevant systems.

Additionally, juxtaposing the commander's strategic goals with a systems understanding of the opponent and battlespace informs the critical factor analysis that identifies adversary center(s) of gravity and critical capabilities, requirements, and vulnerabilities.[53] Matching what is to be achieved with a systems understanding of the adversary and operational environment provides insight into potentially feasible operational concepts. It also permits analysts to consider the possible effects of action. American joint doctrine calls its systematic and

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[51] Ernest R. May, "Capabilities and Proclivities," in *Knowing One's Enemies: Intelligence Assessment Before the Two World Wars,* edited by Ernest R. May (Princeton, NJ: Princeton University Press, 1984), 503.
[52] Checkland, *Systems Thinking, Systems Practice,* 3.
[53] *Joint Publication 2-01.3 Joint Intelligence Preparation of the Operational Environment* (16 June 2009), xviii-xxi.

continuous analytical approach to understanding relevant systems and their relation to strategic goals the Joint Intelligence Preparation of the Operational Environment (JIPOE).[54]

Like all cognition, analysis is subject to pathologies of the mind. Analysts develop implicit mental models—paradigms and schema—based on conscious and unconscious assumptions used to manage complexity, uncertainty, and information overload.[55] An analyst's degree of cultural awareness about his subject may affect the model.[56] Structural factors also shape analytical models. For example, Richard Betts, in his landmark 1978 article "Analysis, War, and Decision: Why Intelligence Failures are Inevitable," wrote, "Policy premises constrict perception, and administrative workloads constrain reflection."[57] Models can be useful; and, they can also be inaccurate. Heuer concluded, "Accurate estimates depend as much on the mental model used in forming the picture as upon the number of pieces of the puzzle that have been collected."[58] Analysts often perceive what they expect to perceive.[59]

Heuristic patterns are resistant to change. Analysts need cognitive closure to establish answers upon which subsequent analysis can build.[60] At the macro-level, closure is manifested in the termination of

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[54] JP 2-0, I-16; JP 2-01.3, xi.

[55] Heuer, *Psychology of Intelligence Analysis*, 60. Also see Karl Popper, *The Open Society and Its Enemies, Volume Two: Hegel and Marx* (London: Routledge, 2003), 289; Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3rd Edition (Chicago, IL: Chicago University Press, 1962/1996); and Robert Jervis, *Perception and Misperception in International Relations* (Princeton, NJ: Princeton University Press, 1976).

[56] Patrick Porter, *Military Orientalism: Eastern War Through Western Eyes* (New York, NY: Columbia University Press, 2009), 13-19.

[57] Betts, "Analysis, War, and Decision: Why Intelligence Failures Are Inevitable," 61.

[58] Heuer, *Psychology of Intelligence Analysis*, 62.

[59] Heuer, *Psychology of Intelligence Analysis*, 8.

[60] Kjetil Anders Hatlebrekke and M.L.R. Smith, "Towards a New Theory of Intelligence Failure? The Impact of Cognitive Closure and Discourse Failure," *Intelligence and National Security* 25, no. 2 (April 2010), 148-149. Also see Arie W. Kruglanski, *Lay Epistemics and Human Knowledge: Cognitive and Motivated Biases* (New York, NY: Plenum, 1989), 14; Uri Bar-Joseph, "Intelligence Failure and the Need for Cognitive Closure: The Case of Yom Kippur," in *Paradoxes of Strategic Intelligence, Essays in Honour of Michael I. Handel,* edited by Richard Betts and Thomas Mahnken (London: Frank Cass, 2003), 182.

discourse regarding an issue.[61] An innate desire for clarity deters thinkers—analysts and decisionmakers alike—from re-examining a model's assumptions.[62] Deficiencies in logic are unavoidable, resistant to modification, and a threat to accurate and reliable intelligence.[63]

Cognitive biases require rigorous countermeasures. Heuer offered several in *Psychology of Intelligence Analysis,* including methodical hypothesis construction, competing hypotheses, and comparing historical analogies.[64] Betts offered the most fundamental advice for addressing analytical pathologies when he suggested that we recognize the inherent shortcomings of analysis, consciously think about thinking, and develop a tolerance for disaster.[65] Accurate analysis requires critical thinking, but critical thinking is not a guarantor of accuracy.[66]

Analysis is not fortune-telling.[67] It cannot predict the future; rather, it can only estimate it. Complicated problems—those with many interconnected objective and subjective factors—are inherently unpredictable. Thus, estimates are exercises in probability. Clausewitz provided the following insight on estimates at the operational level of war: "From the enemy's character, from his institutions, the state of his

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[61] Hatlebrekke and Smith, "Towards a New Theory of Intelligence Failure? The Impact of Cognitive Closure and Discourse Failure," 156-160.
[62] Hatlebrekke and Smith, "Towards a New Theory of Intelligence Failure? The Impact of Cognitive Closure and Discourse Failure," 149.
[63] Heuer, *Psychology of Intelligence Analysis,* 11.
[64] Heuer, *Psychology of Intelligence Analysis,* 32-33, 34-35, 38, 95-107; for additional techniques see Wayne Michael Hall and Gary Citrenbaum, *Intelligence Analysis: How To Think in Complex Environments* (Santa Barbara, CA: Praeger Security International, 2010) and Richards J. Heuer, Jr., and Randolph H. Pherson, *Structured Analytic Techniques for Intelligence Analysis* (Washington, DC: CQ Press, 2011).
[65] Betts, "Analysis, War, and Decision: Why Intelligence Failures Are Inevitable," 83-89.
[66] Moore, *Critical Thinking and Intelligence Analysis,* 8-12. Moore argued that the US intelligence community should institutionalize the elements of critical thinking as described by Linda Elder and Richard Paul, *The Foundations of Analytic Thinking: How To Take Thinking Apart and What To Look For When You Do* (Dillon Bay, CA: The Foundation for Critical Thinking, 2003).
[67] Gazit, "Estimates and Fortune-Telling in Intelligence Work," 36-56; Joseph S. Nye, "Peering into the Future," *Foreign Affairs* 73, no. 4 (Jul/Aug 1994), 82-93.

affairs, and his general situation, each side, using the laws of probability, forms an estimate of its opponent's likely course and acts accordingly."[68]

According to Betts, because analysis is inherently inaccurate in predicting the future, so-called "intelligence failures" are "not only inevitable, they are natural."[69] However, the term's use often indicates an ignorance of intelligence by the speaker. As Betts explained, "In the best known cases of intelligence failure, the most crucial mistakes have seldom been made by collectors of raw information, occasionally by professionals who produce finished analyses, but most often by the decision makers who consume the products of intelligence services."[70] The questions and assumptions that drive analysis are those of the decisionmaker. At the operational level of war, as at all other levels, this burden rests with the commander.

To refine this point, an appreciation of the limits of analysis is crucial to fully exploiting the potential of intelligence. Ernest May contended, "A better test [of merit] than accuracy or acceptability may be simply whether assessments address the right questions: that is, the questions right answers to which could be useful guides to action."[71] Analysts at the operational level of war, like everyone there, are enslaved by their resources, especially time, and the priorities they are given. Unless otherwise directed, those priorities—those questions—are the commander's PIRs.

Commanders who are comfortable with intelligence at the operational level of war are more tolerant of its imprecision relative to

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[68] Clausewitz, *On War*, 80.
[69] Betts, "Analysis, War, and Decision: Why Intelligence Failures Are Inevitable," 54.
[70] Betts, "Analysis, War, and Decision: Why Intelligence Failures Are Inevitable," 61. For more on the literature of analytical surprise, see Steve Chan, "The Intelligence of Stupidity: Understanding Failures in Strategic Warning," *The American Political Science Review* 73, no. 1 (Mar 1979), 171-180; Gazit, "Estimates and Fortune-Telling in Intelligence Work;" Ariel Levite, *Intelligence and Strategic Surprises* (New York, NY: Columbia University Press, 1987); Richard K. Betts, "Surprise, Scholasticism, and Strategy: A Review of Ariel Levite's Intelligence and Strategic Surprises," *International Studies Quarterly* 33, no. 3 (Sep 1989), 329-343; and Nye, "Peering into the Future."
[71] May, "Capabilities and Proclivities," 504.

tactical intelligence. Joseph Nye, in his article "Peering into the Future," described analysts as educators.[72] He wrote, "Rather than trying to predict the future, estimators should deal with heightened uncertainty by presenting alternative scenarios. To be useful, estimates must describe not only the nature and probability of the most likely future paths, but they must also investigate significant excursions off those paths and identify signposts that would tell us we are entering such territory."[73] Alternative scenarios are like alternate hypotheses, the pursuit of which requires a willingness to accept cognitive dissonance. This can be discomforting to a commander who is invested in a particular operational approach. Furthermore, commanders must want to be educated.

As with collection operations, intelligence directors must balance their support of the commander and staff with analytical support to tactical forces. This is no easy challenge as both pull from finite intelligence resources. Andrew Marshall, the Director of the Office of Net Assessment, cautioned that collection and analysis of one type of assessment can impair another.[74] Previously, we asserted that the commander was the most important consumer of operational intelligence. However, when commanders disengage from their intelligence process, for whatever reason, other forces can influence the balance of analysis. The questions that underpin strategies and campaigns are ambiguous and the analysis inconclusive. In contrast, the questions that facilitate tactical action are often tangible, answerable, and gratifying. There is a natural tendency for analysis at the operational level to gravitate toward the latter given the demands of limited resources, time, and the imperative of action.

A final point on analysis at the operational level of war regards the importance of linking analytical resources and aggregating information.

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[72] Nye, "Peering into the Future," 93.
[73] Nye, "Peering into the Future," 93.
[74] May, "Capabilities and Proclivities," 5.

Analytical requirements inevitably exceed the capacity of collection assets. Not all collection capabilities are made available to the joint force commander for employment; regardless, the appetite for intelligence is simply insatiable. Nevertheless, important information is oftentimes collected by ISR platforms organic to tactical forces or by the forces themselves. Finding and funneling this information from tactical units to the operational level analytical centers can improve greatly the shared understanding of the joint force.[75] Directors of intelligence must build networks of analysts to share information and expertise effectively.

Conclusions

Sun Tzu admonished us to understand the enemy. The practice of intelligence involves the collection of information about the adversary and the fog-covered battlespace, and the analysis of that data to produce knowledge. The Chinese theorist also advised us to understand ourselves. Successful analysis requires critical thinking, including an awareness of cognitive biases and the limitations of intelligence. Collection and analysis are the two primary functions operational intelligence performs to support subordinate forces, planners, and commanders. Directors of intelligence must balance their support among these customers. While support to tactical forces facilitates action, it is the operational-level commander who shapes the strategy and owns the campaign. Systems analyses, like that in the JIPOE, help build a realistic understanding of the adversary and the battlespace which supports plan development and the operational-level commander's decisionmaking process. Ultimately, intelligence outputs—advice, estimates, and assessments—must support the commander. Intelligence professionals are, after all, an extension of the commander's mind. That relationship is the subject of Chapter Three.

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[75] Flynn, et al., *"Fixing Intel: A Blueprint for Making Intelligence Relevant in Afghanistan,"* *9, 12-13.*

Chapter 3

Operational Intelligence and the Commander

The necessity of procuring good intelligence is apparent and need not be further urged—all that remains for me to add, is that you keep the whole matter as secret as possible. For upon Secrecy, Success depends in most enterprises of the kind, and for want of it, they are generally defeated, however well planned and promising a favorable issue.

George Washington

Many intelligence reports in war are contradictory; even more are false, and most are uncertain. What one can reasonably ask of an officer is that he should possess a standard of judgment, which he can gain only from knowledge of men and affairs and from common sense.

Clausewitz

For Carl von Clausewitz, the elusiveness of clarity in war elevated the importance of the commander's judgment.[1] His experiences made him skeptical about the utility of intelligence.[2] However, Clausewitz was as familiar with the failures of Prussian intelligence as he was ignorant of the successes of Napoleon Bonaparte's sophisticated intelligence system.[3] Intelligence in today's construct is a complicated process of collection and analysis about the enemy and battlespace on behalf of the commander. Intelligence informs the commander's judgment.

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[1] Carl von Clausewitz, *On War,* edited by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press), 117.

[2] Victor M. Rosello, "Clausewitz's Contempt for Intelligence," in *Intelligence and the National Security Strategist: Enduring Issues and Challenges,* edited by Roger Z. George and Robert D. Kline, (Lanham, MD: Rowman & Littlefield Publishers, Inc., 2006), 12; Walter Goerlitz, *History of the German General Staff, 1657-1945* (New York, NY: Praeger, 1967), 61.

[3] Rosello, "Clausewitz's Contempt for Intelligence," 12-14; Jay Luvaas, "Napoleon's Use of Intelligence: The Jena Campaign of 1805," in *Leaders and Intelligence,* edited by Michael I. Handel, (Totowa, NJ: Frank Cass, 1989), 40-54; Philippe Henri de Grimoard, *Treatise on Service in the Army General Staff: Relfections on its Organization and Functions, in Administrative and Military Respect,* translated by Rick Sanders, *Studies in Intelligence* 54, no. 2 (June 2010), 37-40.

Early commanders performed many of their own intelligence activities. They sought high ground from which to survey the enemy.[4] They managed spy networks.[5] The great commanders of the past conducted their own intelligence analysis, synthesizing various fragments of collected information.[6] Such was the practice of intelligence through Clausewitz's time.

As war increased in scale and complexity, intelligence did likewise. Permanent intelligence staffs became common among European powers by the late nineteenth century, and reliance on individual *coup d'oeil* gave way to more systematic and wide ranging methods.[7] At the height of World War II, tens of thousands of analysts, cartographers, photo interpreters, cryptologists, linguists, mathematicians, and engineers labored to reduce strategic and operational uncertainty.[8] Today, interconnected constellations of sensors networked with computer-aided

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[4] Dino A. Brugioni, *Eyes in the Sky: Eisenhower, the CIA, and Cold War Aerial Espionage*, (Washington, DC: Naval Institute Press, 2010), 1; for example, Exodus 17:8-13 records that Moses watched from a hilltop as Joshua led the Israelites in battle against the Amelekites.

[5] Sun Tzu, *The Illustrated Art of War*, translated by Samuel B. Griffith, (New York, NY: Oxford University Press, 2005), 236; Julius Caesar, *Caesar's Commentaries: On the Gallic War & On The Civil War*, translated by W.A. MacDevitt, (El Paso, TX: El Paso Norte Press, 2005), 7; N.J.E. Austin and N.B. Rankov, *Exploratio: Military and political intelligence in the Roman world from the Second Punic War to the battle of Adrianople* (New York, NY: Routledge, 1995), 54-60; Christopher M. Andrew, "American Presidents and Their Intelligence Communities," in *Analyzing Intelligence: Origins, Obstacles, and Innovations*, edited by Roger Z. George and James B. Bruce, (Washington, DC: Georgetown University Press, 2008), 431; Alexander Rose, *Washington's Spies: The Story of America's First Spy Ring* (New York, NY: Bantam, 2006); and Jay Luvaas, "Napoleon's Use of Intelligence: The Jena Campaign of 1805", 40-54.

[6] David Thomas,"U.S. Military Intelligence Analysis: Old and New Challenges," in *Analyzing Intelligence: Origins, Obstacles, and Innovations*, edited by Roger Z. George and James B. Bruce (Washington, DC: Georgetwon University Press, 2008), 138; Martin L. Van Creveld, *Command in War* (Cambridge, MA: Harvard University Press, 1985), 56-57, 66-68.

[7] Van Creveld, *Command in War*, 56-57; Thomas,"U.S. Military Intelligence Analysis: Old and New Challenges," 138.

[8] Dennis E. Showalter, "Intelligence on the Eve of Transformation: Methodology, Organization, and Application," in *The Intelligence Revolution: A Historical Perspective*, edited by Lt Col Walter T. Hitchcock, (Washington, DC: U.S. Government Printing Office, 1991), 25; David Kahn, *The Codebreakers: The Story of Secret Writing*, (New York, NY: Macmillan Publishing Co., Inc., 1967), ix, 119; Lee Kennett, *The First Air War: 1914-1918*, (New York, NY: The Free Press, 1991), 18; Brugioni, *Eyes in the Sky*, 23.

intelligence professionals illuminate battlespaces with a degree of detail unknown to Clausewitz.[9] The contemporary practice of intelligence is more complicated than it was in the past. However, its primary purpose remains unchanged. Operational intelligence supplements the commander's mind.

This chapter discusses the central role of the commander in the practice of operational intelligence. It identifies the commander's personality, experience, and self-perceptions of vulnerability and expertise as variables that shape the use of intelligence. Next, it outlines useful traits of key intelligence advisors as they relate to the commander, including rapport, integrity, courage, expertise, and communication skills. The chapter concludes that the single most important determinant of the success of operational intelligence is the commander. At the operational level of war, supple-minded commanders with experience digesting, assessing, and synthesizing intelligence are best positioned to lead intelligence operations and translate their insights into effective action.

Before beginning it is necessary to comment briefly on the chapter's research. The topic under consideration is the relationship between the commander and operational intelligence; therefore, the chapter's preferred sources are those that concentrate on decisionmakers at the operational level of war. However, it does not ignore the substantial body of scholarship that scrutinizes multiple aspects of

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[9] William A. Owens, "The Emerging System of Systems," *Military Review* 75, Iss 3 (May/Jun 1995): 15; Martin C. Libicki, "The Mesh and the Net: Speculations on Armed Conflict in a Time of Free Silicon," McNair Paper 28, Institute for National Strategic Studies (Washington, DC: National Defense University, March 1995), 24; Martin C. Libicki, "DBK and its Consequences," in *Dominant Battlespace Knowledge: The Winning Edge,* edited by Stuart E. Johnson and Martin C. Libicki, (Washington, DC: National Defense University Press Publications, 1995), 28; Michael I. Handel, "Intelligence and Military Operations," in *Intelligence and Military Operations,* edited by Michael I. Handel (Portland, OR; Frank Cass, 1990),12.

national-level decisionmaking and the use of strategic intelligence.[10] Where it is appropriate, this chapter borrows insights and illustrations from the strategic-level literature and extends them to the operational level of war.

The Commander

The quality of the commander has significant bearing on the effectiveness of operational intelligence.[11] Ultimately, he is responsible for guiding the activities of his intelligence system.[12] Michael Handel, in "Leaders and Intelligence", wrote, "Although there is no ideal type of leader for the optimal use of intelligence, personality and experience are extremely important."[13] Personality, experience, and self-perceptions of vulnerability and expertise affect a commander's ability to exploit operational intelligence.

Personality is a complex set of cognitive, attitudinal, and behavioral elements.[14] Helpfully, a substantial body of psychological research exists regarding some strategic-level decisionmakers. For

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[10] The author perceives an unsurprising scholarship imbalance that tilts toward decisions and processes at the strategic level of war. The author attributes to four factors the relative breadth and depth of the strategic literature over that on the operational level of war. First, the operational level is a recent advent in Anglo-American doctrine. Therefore, its direct assessment is relatively new. While previous historical works implicitly consider it, they seldom separate the operational level from the strategic or tactical. Second, the relative profile of strategic-level issues and personalities garners more attention, therefore more scholarship. Third, while the classified nature of intelligence limits research on its role in decisionmaking across all levels of war, the higher profile of strategic-level issues places greater pressure on government offices to declassify materials related to momentous decisions. Fourth, strategic-level decisions tend to produce more evidence than those at the operational level of war. The pace, conditions, and diffractive nature of information during war make operational-level record-keeping relatively less comprehensive. As well, to the extent strategic-level decisionmaking is more plural, it has the potential to produce a greater number of accounts on key decisions. All of this is not to say that worthy works do not exist on decisions and personalities at the operational level of war; rather, only that the strategic literature may supplement our understanding of the latter.
[11] Michael I. Handel, "Leaders and Intelligence," in *Leaders and Intelligence*, edited by Michael I. Handel (Totowa, NJ; Frank Cass, 1989), 6.
[12] Shlomo Gazit, "Intelligence Estimates and the Decision-Maker," in *Leaders and Intelligence,* edited by Michael I. Handel (Totowa, NJ; Frank Cass, 1989), 267.
[13] Handel, "Leaders and Intelligence," 6.
[14] Lance Blakesley, *Presidential Leadership: From Eisenhower to Clinton* (Chicago, IL: Nelson-Hall Publishers, 1995), 7.

example, Alexander and Juliette George, in their book *Presidential Personality and Performance*, found three aspects of personality particularly relevant to a leader's decisionmaking patterns.[15] The first was cognitive style, or "...the way in which he defines informational needs...and his preferred ways of acquiring and utilizing information and advice from others...."[16] Other facets of personality important to decisionmaking include the leader's sense of competence on the matter at hand and interpersonal relations.[17]

The personality extremes of Adolph Hitler and Winston Churchill illustrate the effect of personality on intelligence receptivity. According to David Jablonsky, author of "The Paradox of Duality: Adolf Hitler and the Concept of Military Surprise," Hitler was instinctive, compulsive, unremitting, and unitary in his decisionmaking.[18] Hitler's press chief described him as unteachable, and one of his general officers attributed to him an "almost wild-animal perception for anything which ran counter to himself."[19] These traits made him extremely resistant to new or contrary information and incapable of fully exploiting intelligence in his decisionmaking.[20] Churchill, by contrast, passionately embraced intelligence. Christopher Andrew, in "Churchill and Intelligence," ascribed the prime minister's adroit use of intelligence, in part, to an imaginative and reflective mind.[21]

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[15] Alexander L. George and Juliette L. George, *Presidential Personality and Performance* (Boulder, CO: Westview Press, 1998), 9. Also see James David Barber, *The Presidential Character: Predicting Performance in the White House*, 4th ed. (Englewood Cliffs, NJ: Prentice-Hall, 1985); Richard Neustadt, *Presidential Power* (New York, NY: Wiley, 1980); and Bruce Buchanan, *The Citizen's Presidency: Standards of Choice and Judgment* (Washington, DC: Congressional Quarterly, 1987).
[16] George and George, *Presidential Personality and Performance,* 9.
[17] George and George, *Presidential Personality and Performance,* 9.
[18] David Jablonsky, "The Paradox of Duality: Adolf Hitler and the Concept of Military Surprise" in Michael I. Handel (ed.), *Leaders and Intelligence* (Totowa, NJ; Frank Cass, 1989), 55-117.
[19] Jablonsky, "The Paradox of Duality," 75.
[20] Jablonsky, "The Paradox of Duality," 75.
[21] Christopher Andrew, "Churchill and Intelligence" in Michael I. Handel (ed.), *Leaders and Intelligence* (Totowa, NJ; Frank Cass, 1989), 181-193.

The correlation between personality type and the capacity to exploit intelligence extends to the operational level of war. Harold Deutsch, in his comparative analysis of intelligence use by WWII generals, concluded that, although all commanders were vulnerable to episodes of wishful thinking, the rigid-minded were less likely to use intelligence resources effectively.[22] Deutsch identified Field Marshal Erwin Rommel and General George Patton as "top practitioners of the creative use of intelligence" who habitually demanded much of their intelligence advisors and were sufficiently flexible to adjust course as intelligence identified potential opportunities and risks.[23]

Despite Patton's gruff public persona, he was collegial with and inquisitive of his intelligence advisors during planning. Major Melvin Helfers, an intelligence officer who worked for Patton, said of the commander, "My experience with him was like a college professor conducting a seminar, easy going and he had a sense of humor."[24] Additionally, Patton used intelligence to drive his operational planning. As one author noted, "Patton never made a move without first consulting G-2 [his director of intelligence]. G-2 always had the first to say. The usual procedure at other Headquarters was to decide what to do and then, perhaps, ask G-2 what was out front. Patton always got his information first and then acted on the basis of it."[25]

One episode that demonstrates the faith Patton placed in intelligence occurred on the evening of 6 August 1944. Toward the end of the first full week of US Third Army operations in France, Patton ordered advancing forces to stop and reposition defensively around

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[22] Harold C. Deutsch, "Commanding Generals and the Uses of Intelligence" in Michael I. Handel (ed.), *Leaders and Intelligence* (Totowa, NJ; Frank Cass, 1989), 254-255.
[23] Deutsch, "Commanding Generals and the Uses of Intelligence," 255.
[24] Bradford J. Shwedo, "XIX Tactical Air Command and ULTRA: Patton's Force Enhancers in the 1944 Campaign in France," Cadre Paper no. 10 (Maxwell AFB, AL: Air University Press, May 2001), 24.
[25] Attributed to Robert S. Allen, *Lucky Forward* (New York, NY: Vanguard Press, 1947), 68; as quoted in Shwedo, "XIX Tactical Air Command and ULTRA," 56.

Mortain after receiving the assessment of his director of intelligence, then-Colonel Oscar Koch, of a probable German counteroffensive in that area.[26] The Germans attacked the morning of 7 August expecting to find the area unprotected.[27] Instead, they confronted a dug-in 35th Division and a sky filled with combat aircraft.[28] At Mortain the German counteroffensive broke and the door swung open for Patton's drive across France. The conditions for this success were, in part, set by the commander's willingness to adjust his plans based on intelligence assessments.

Another example of intelligence-based opportunism by a flexibly minded commander is then-Lieutenant General George Kenney's use of air power in the southwest Pacific. According to Edward Drea in his book *MacArthur's ULTRA*, the innovative Kenney capitalized repeatedly on intelligence derived from Japanese military communications— codenamed ULTRA—to orchestrate successful operations.[29] At the Battle of the Bismark Sea in March 1943, intelligence presented Kenney the opportunity to interdict a Japanese convoy carrying the 51st Division to Lae, New Guinea.[30] Drea concluded of the ambush, "Destruction was so complete that the strategic initiative in New Guinea passed forever from Japanese hands."[31] Kenney also demonstrated his willingness to exploit opportunities presented by intelligence in his attacks against Wewak in August 1943, around Rabaul in October and November 1943, and at

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[26] Deutsch, "Commanding Generals and the Uses of Intelligence," 230; Shwedo, "XIX Tactical Air Command and ULTRA," 46-51.
[27] Deutsch, "Commanding Generals and the Uses of Intelligence," 230; Shwedo, "XIX Tactical Air Command and ULTRA," 50.
[28] Shwedo, "XIX Tactical Air Command and ULTRA," 50.
[29] Edward J. Drea, *MacArthur's ULTRA: Codebreaking and the War against Japan, 1942-1945* (Lawrence, KS: University Press of Kansas, 1992), 232. For a useful biography of Kenney, which extols his flexible mind and innovative character, see Thomas E. Griffith, Jr., *MacArthur's Airman: General George C. Kenney and the War in the Southwest Pacific* (Lawrence, KS: University of Kansas Press, 1998).
[30] Drea, *MacArthur's ULTRA*, 61, 68-71.
[31] Drea, *MacArthur's ULTRA*, 61.

Hollandia in March and April 1944.[32] Drea noted, "Kenney and his air commanders used ULTRA with deadly effectiveness."[33]

Conversely, some commanders were more rigid in their thinking. Deutsch singled out General Bernard Montgomery as an example of an obstinate commander who "brushed aside, with disastrous consequences, [intelligence that] did not suit him in relation to Goodwood, the Antwerp estuary, and Market Garden...."[34] Additionally, Drea concluded that the strong-minded General Douglas MacArthur's "sense of destiny" shaped his strategic concepts and operational plans more so than any revelations from intelligence.[35] He disregarded timely and accurate intelligence before undertaking potentially disastrous—although ultimately successful—operations in the Admiralties from February through May 1944, at Leyte in October 1944, at Luzon in January 1945, and in his planning for the invasion of Kyushu in the summer of 1945.[36] According to Drea, "MacArthur consistently dismissed ULTRA evidence that failed to accord with his preconceived strategic vision."[37] Summarizing the role of personality using two archetypes, a determined but unimaginative commander who is uncomfortable with uncertainty and impervious to criticism is less able

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[32] Drea, *MacArthur's ULTRA*, 232. According to Drea, Kenney was not without his own cognitive blinders. One documented case of disregard for intelligence by Kenney occurred in his assessment of Japanese defenses in the Admiralties. Following a series of bombing attacks on the islands, Kenney concluded the islands to be deserted and strongly recommended their invasion to MacArthur. Kenney's analysis was based on reports from a limited number of aerial reconnaissance flights that revealed no activity. As well, his conviction in the efficacy of air power may have skewed his thinking. Kenney's assessment contradicted that of MacArthur's director of intelligence, then-Colonel Charles Willoughby. The intelligence estimate concluded, based on multiple sources, that a substantial Japanese force remained to defend the Admiralties. Kenney refused to believe Willoughby's assessments, which turned out to be remarkably accurate. Despite this example of wishful thinking by Kenney, Drea concluded that, in sum, the airman was willing to exploit the opportunities offered by intelligence. For a description of Kenney's faulty analysis, see Drea, *MacArthur's ULTRA*, 98-104.
[33] Drea, *MacArthur's ULTRA*, 232.
[34] Deutsch, "Commanding Generals and the Uses of Intelligence," 254.
[35] Drea, *MacArthur's ULTRA*, 230.
[36] Drea, *MacArthur's ULTRA*, 231.
[37] Drea, *MacArthur's ULTRA*, 230.

to exploit intelligence than a supple-minded commander who is alive to change and tolerant of dissenting views.[38]

In addition to personality, the commander's experience also matters. A commander accustomed to employing intelligence at the operational level of war enjoys advantages relative to a counterpart who is unknowledgeable of the methodologies, possibilities, and limits of operational intelligence. Handel noted that most senior military leaders only experience tactical intelligence before assuming operational-level command, requiring on-job-training in the nuances of operational intelligence leadership.[39] While tactical intelligence is, by nature, immediate and straightforward, operational intelligence requires commander investment in an iterative and time-consuming analytical process to fully consider longer-term questions such as what might the enemy do next?[40] Handel contended, "A principal problem senior military commanders face is that experience is normally the only way to acquire a proper education in the use of intelligence on the higher levels of command."[41]

Patton's example supports the contention that experience matters. By the time Patton led Third Army into Normandy in August 1944, he was a veteran commander of the North Africa and Sicily campaigns.[42] Furthermore, he had two intelligence assignments earlier in his career which familiarized him with the potential and limitations of intelligence activities.[43] Patton was very comfortable with the leadership and consumption of operational intelligence.

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[38] Handel, "Leaders and Intelligence," 6.
[39] Handel, "Leaders and Intelligence," 16.
[40] Handel, "Intelligence and Military Operations," 27.
[41] Handel, "Intelligence and Military Operations," 25.
[42] Deutsch, "Commanding Generals and the Uses of Intelligence," 230.
[43] Roger H. Nye, *The Patton Mind: The Professional Development of an Extraordinary Leader* (Garden City Park, NY: Avery Publishing, 1993), 67, 102; Oscar W. Koch and Robert G. Hays, *G-2: Intelligence for Patton* (Philadelphia, PA: Whitmore Publishing Co., 1971), 150-164; Shwedo, "XIX Tactical Air Command and ULTRA," 17, 132.

There is also an attitudinal dimension to a leader's experience with intelligence.[44] Those who attribute previous success to the skillful use of intelligence are far more receptive to advice from intelligence professionals. Contrasting Hitler with Churchill, the former's early experience with German intelligence convinced him that his intuition was more reliable than were the prognostications of his military professionals, whereas the latter's extensive familiarity and positive experience with British intelligence products taught him that intelligence actually was vital to the formulation of strategy and the design of campaigns.[45] At the operational level of war, Montgomery's distrust of intelligence advice—which sometimes bordered on hostility—was probably both a cause and effect of the greater faith he placed on his intuition and exhaustive planning.[46] On the other hand, Patton, who often relied on and praised his intelligence staff, went so far as to say of his intelligence director, "I ought to know what I'm doing, I've got the best damned intelligence officer in any United States command."[47]

Two additional factors—perceptions of vulnerability and expertise—determine the quality of a commander's leadership as it relates to intelligence. First, leaders who perceive their force as being weak relative to an adversary have greater incentive to seek extensive support from intelligence.[48] Handel ascribed this condition to British leadership following the initial setbacks of WWII and to Israeli leadership since 1949.[49]

Similarly, Deutsch noted that offensively minded commanders lean more heavily on intelligence, perhaps to mitigate the risks of their daring

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[44] Handel, "Leaders and Intelligence," 7.
[45] Handel, "Leaders and Intelligence," 7; Andrew, "Churchill and Intelligence," 181-185.
[46] Deutsch, "Commanding Generals and the Uses of Intelligence," 211-215.
[47] Fred Ayer, Jr., *Before the Colors Fade* (Boston, MA: Houghton Mifflin, 1964), 175; also quoted in Shwedo, "XIX Tactical Air Command and ULTRA," 17-18.
[48] Handel, "Leaders and Intelligence," 7.
[49] Handel, "Leaders and Intelligence," 7-8.

ventures.[50] For example, both Rommel and Patton, who relied on speed and surprise in their operational concepts, were also enthusiastic users of intelligence.[51] In North Africa in 1941-1942, Rommel supplemented his communications intelligence reports with frequent personal aerial reconnaissance sorties to augment his understanding of the battlespace.[52] He also devised elaborate deception ruses based on his perceptions of adversary intelligence collection activities.[53] As well, Patton enhanced his aggressive operations with the systematic use of intelligence. Group Captain Frederick Winterbotham, a senior Royal Air Force officer familiar with ULTRA and Patton, concluded that the American "never failed to use every opportunity that ULTRA gave him to bust open the enemy."[54] Commanders who must optimize resources and action tend to be more alive to the opportunities presented by their intelligence than do commanders with force superiorities and passive aims.

Second, a commander's self-perception of expertise on a matter also affects his use of intelligence. In general, leaders who believe themselves already familiar with a situation or issue are less inclined to request advice or reconsider alternative viewpoints. For this reason, leaders are often more receptive of technical and specialized intelligence, such as scientific or economic assessments. [55] At the operational level of war, commanders are perhaps least receptive of battlefield assessments that contradict prevailing opinion. Unfortunately, commanders are not immune to the cognitive pathologies described in the previous chapter.

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[50] Deutsch, "Commanding Generals and the Uses of Intelligence," 255; Handel, "Leaders and Intelligence," 29-30.
[51] Deutsch, "Commanding Generals and the Uses of Intelligence," 229.
[52] Deutsch, "Commanding Generals and the Uses of Intelligence," 215-216.
[53] Deutsch, "Commanding Generals and the Uses of Intelligence," 216.
[54] F.W. Winterbotham, *The ULTRA Secret* (London: Dell, 1975), 151; also paraphrased in Deutsch, "Commanding Generals and the Uses of Intelligence", 229; and quoted in Shwedo, "XIX Tactical Air Command and ULTRA," 13.
[55] Handel, "Leaders and Intelligence," 8.

The overconfidence that pervaded US 12 Army Group and US First Army before the December 1944 Battle of the Bulge in Belgium's Ardennes forest provides one example of premature cognitive closure. According to John Eisenhower, in his book *The Bitter Woods,* the steady advance of Allied forces across Western Europe imbued both commanders and intelligence officers with a spirit of optimism that clouded their judgment.[56] Convinced that Wehrmacht commanders intended to withdraw to more defensible positions within Germany, American leaders dismissed the handful of contrary intelligence reports that indicated preparations for a German counteroffensive.[57] A German attack through the Ardennes simply made no sense given the Allied leadership's "predetermination of enemy intentions."[58] Consequently, the assaults that began 16 December came as a surprise and bloody test of Allied mettle that forced American and British commanders to scramble together an operational response. Commanders must be keenly aware of how their personality, experience, and perceptions of expertise affect their judgment, including their use of intelligence. Assisting to this end will be the director of intelligence.

The Intelligence Advisor

The quality of the intelligence advisor also contributes to the success of intelligence at the operational level of war. Directors of intelligence require the ability to gain the commander's trust as well as personal integrity and moral courage, professional expertise, intellectual flexibility, and a talent for communicating. Foremost is gaining trust, without which the advisor lacks access to the decision maker.

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[56] John S. D. Eisenhower, *The Bitter Woods: The Battle of the Bulge* (New York, NY: Da Capo Press, Inc., 1995), 168.

[57] Eisenhower, *The Bitter Woods,* 162-178. Particularly noteworthy are the assessments of Colonel Monk Dickson, including Estimate 37 dated 10 December 1944. Although not entirely accurate, Dickson forecasted the German counteroffensive.

[58] Eisenhower, *The Bitter Woods,* 168, 174.

Rapport between the commander and intelligence advisor is critical.[59] Advisors require access to the commander to receive guidance and deliver product. Betts, in his book *Enemies of Intelligence*, argued, "The best analysis is useless if those with authority to act on it do not use it."[60] Leaders can function effectively without positive chemistry between themselves and their senior intelligence officers; intelligence officers cannot.[61]

Oscar Koch, who served as Patton's long-time director of intelligence and enjoyed an unsurpassed rapport with his commander, called the mutual respect between the commander and intelligence advisor command support. Koch wrote in his book *G-2: Intelligence for Patton*:

> Command support -- the support of his commander, evidenced primarily by mutual confidence engendered by and nurtured through respect. He must be confident that the results of his efforts will be respected by his commander, both in terms of interest and attitude and in the degree of utilization of the end product so painstakingly produced. The commander on the other hand, must be confident that his intelligence chief's work merits such respect. If either confidence fails, command support is nonexistent. With command support, G-2 will tackle any job. Without it, he performs a useless task, merely going through a series of staff exercises. In that case, both he and the commander are losers.[62]

To build the necessary relationship, Handel recommended senior intelligence officers first endeavor to understand the working habits,

[59] Gazit, "Intelligence Estimates and the Decision-Maker," 268.
[60] Richard K. Betts, *Enemies of Intelligence : Knowledge & Power in American National Security* (New York, NY: Columbia University Press, 2007), 67. Also see Richard K. Betts, "The New Politics of Intelligence: Will Reforms Work This Time?" *Foreign Affairs* 83, no. 3 (May/June 2004), 7.
[61] Handel, "Leaders and Intelligence," 15; Gazit, "Intelligence Estimates and the Decision-Maker," 268.
[62] Koch and Hays, *G-2: Intelligence for Patton*, 165; Shwedo, "XIX Tactical Air Command and ULTRA," 127.

character, and ambitions of their commanders.[63] Experience also

provides intelligence advisors insight into the commander's perspective.

Handel concluded, "In the education of the intelligence expert priority

should be given to better acquaintance or previous experience with the

problems of command and the planning of military operations."[64]

Learning to think like the commander enables the advisor to anticipate

his principal's challenges and questions, making intelligence more

relevant to the decisionmaker. In this way, familiarity builds trust and

credibility.

However, advisors must balance rapport with integrity. Effective

intelligence officers guard against excessive familiarity with the

commander, which can undermine analytical objectivity.[65] They must

also possess the courage to present unfavorable information.[66] Most

commanders are unaccustomed to receiving criticism of their decisions

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[63] Handel, "Intelligence and Military Operations," 28.

[64] Handel, "Intelligence and Military Operations," 31.

[65] Sherman Kent, *Strategic Intelligence for American World Policy,* 2nd Edition
(Princeton, NJ: Princeton University Press, 1966), 195-206. Kent argued that
intelligence organizations required a measure of autonomy from decisionmakers to
safeguard analytical integrity. Politicization and pandering are two potential pitfalls of
insufficient autonomy. The former occurs when strategic intelligence advisors become
invested in (or are perceived to be invested in) a policy option or policy-maker.
Operational intelligence advisors can be similarly co-opted by commanders and courses
of action. For more on politicization see Robert M. Gates, "Guarding Against
Politicization," S*tudies in Intelligence* 36, no. 1 (1992), 5-13; Harry Howe Ransom, "The
Politicization of Intelligence," in *Strategic Intelligence: Windows Into a Secret World*,
edited by Loch K. Johnson and James J. Wirtz (Los Angeles, CA: Roxbury Publishing
Company, 2004), 171-182; Richard K. Betts, *Enemies of Intelligence: Knowledge &
Power in American National Security*, 66-103; and Gregory F. Treverton, "Intelligence
Analysis: Between 'Politicization' and Irrelevance," in *Analyzing Intelligence: Origins,
Obstacles, and Innovations*, edited by Roger Z. George and James B. Bruce,
(Washington, DC: Georgetown University Press, 2008), 91-104. Pandering is when
intelligence is shaped to curry favor with a decisionmaker. For more on pandering, see
James J. Wirtz, "Intelligence to Please? The Order of Battle Controversy During the
Vietnam War," in *Strategic Intelligence: Windows Into a Secret World*, edited by Loch K.
Johnson and James J. Wirtz (Los Angeles, CA: Roxbury Publishing Company, 2004),
183-197; and H. Bradford Westerfield, "Inside Ivory Bunkers: CIA Analysts Resist
Managers' 'Pandering'" in *Strategic Intelligence: Windows Into a Secret World*, edited by
Loch K. Johnson and James J. Wirtz (Los Angeles, CA: Roxbury Publishing Company,
2004), 198-218.

[66] R.V. Jones, "Intelligence and Command," in *Leaders and Intelligence,* edited by
Michael I. Handel (Totowa, NJ; Frank Cass, 1989), 291.

from subordinates, and honest reporting of the unfavorable consequences of a proposed or actual course of action can constitute an implicit critique.[67]

Furthermore, many commanders become invested in a preferred or already chosen course of action. The objective evaluation of plans and policies is a way that intelligence assessments in the long run support decision making and thus aid the commander.[68] Advisors carry a duty to advise honestly, regardless of the popularity of the intelligence at their disposal.[69] For these reasons, strength of character and ethical standards—moral courage—are requisites of effective senior intelligence officers.[70] Successful partnerships between commanders and advisors strike a balance between intimacy and distance, between trust and objectivity.[71]

Expertise, often developed over years of experience, helps advisors build credible partnerships with commanders. Intelligence is a complicated enterprise. Senior intelligence officers spend years navigating the archipelago of competing and cooperating intelligence organizations, and understanding the processes of collection and analysis. One recent study determined 90 percent of Air Force intelligence colonels had acquired up to 44 distinct skills during their careers.[72] Expertise postures the advisor to orient intelligence resources to support the commander. It also prepares the senior intelligence officer to educate the commander in how to lead intelligence effectively.[73]

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[67] Handel, "Intelligence and Military Operations", 28.
[68] Handel, "Leaders and Intelligence", 9.
[69] Handel, "Leaders and Intelligence", 9.
[70] Handel, "Intelligence and Military Operations", 31.
[71] Shlomo Gazit called the partnership a "reciprocal relationship" in Gazit, "Intelligence Estimates and the Decision-Maker," 263-269.
[72] Marygail K. Brauner, Hugh G. Massey, S. Craig Moore, and Darren D. Medlin, *Improving Development and Utilization of U.S. Air Force Intelligence Officers* (Santa Monica, CA: RAND Corporation, 2009), 24.
[73] Handel, "Leaders and Intelligence," 15; Gazit, "Intelligence Estimates and the Decision-Maker," 273.

Additionally, the best advisors are analytically flexible. It is axiomatic that they be meticulous and thorough. They must also possess the capacity to tolerate uncertainty.[74] Intelligence professionals must wage an active and continual battle to mitigate the cognitive pathologies within their minds and organizations. Shlomo Gazit, in his article "Estimate and Fortune-Telling in Intelligence Work," asserted, "Intellectual arrogance is one of the most dangerous qualities for an analyst. Those who are sure of themselves after coming to a decision have no place in intelligence."[75]

Finally, good advisors master the art of communication. They discriminate between the necessary and extraneous, protecting commanders from information overload at the risk of being perceived as withholding intelligence.[76] They compose intelligence products to suit the commander's style, even incorporating showmanship when necessary.[77] Similarly, advisors develop a sense of timing, learning when to present intelligence so that it remains pertinent and within context.[78] In sum, effective advisors distill complex issues into those salient points that are most relevant to the commander, and then convey them in a way that assists the commander's understanding of the situation and available options.

Conclusions

Intelligence is not a substitute for the commander's judgment; it is, rather, an aid to it. Today's operational-level commander must understand how to exploit intelligence as an extension of his own mind. The attributes of the commander, his intelligence advisor, and the partnership between them shape the potential for success of intelligence

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[74] Shlomo Gazit, "Estimates and Fortune-Telling in Intelligence Work," International *Security* 4, No. 4 (Spring 1980), 39.

[75] Gazit, "Estimates and Fortune-Telling in Intelligence Work," 39.

[76] Handel, "Leaders and Intelligence", 31; Jones, "Intelligence and Command," 292-293.

[77] Handel, "Intelligence and Military Operations", 28-32; Jones, "Intelligence and Command," 292-294.

[78] Jones, "Intelligence and Command," 294-295.

at the operational level of war. The ideal relationship is open and engaging, mutually respectful without becoming personal. The intelligence advisor belongs within the commander's inner circle, yet is permitted a degree of autonomy. The ultimate advisor is analytical, courageous, intellectually flexible, and articulate. The commander, however, is most critical to the success of operational intelligence. Personality, past experience leading intelligence, and self-perceptions of vulnerability and expertise mold his use of intelligence. Open-minded commanders tolerant of uncertainty and alternate viewpoints and familiar with the capabilities and limits of intelligence are best suited to exploit intelligence in their decisionmaking at the operational level of war. The next chapter considers an historical example of how commanders employed operational intelligence.

Chapter 4

Operational Intelligence in the Malayan Emergency

The Emergency will be won by our intelligence system.

Sir Gerald Templer

The Malayan Emergency is an intelligence success story.[1] After assuming the combined positions of United Kingdom High Commissioner and Director of Operations for Malaya in 1952, General Sir Gerald Templer predicted that the Emergency would be won by intelligence.[2] Anthony Short, in his authoritative history of the Emergency, *The Communist Insurrection in Malaya, 1948-1960,* agreed with Templer when he concluded, "the key to counter insurgency in Malaya was intelligence."[3] Precisely how significant it was, relative to other factors, remains a disputed point. Others highlight the pivotal role of hearts and minds, population control, leadership, organizational culture, and the overarching policies of decolonization and Malayanization.[4] Nonetheless, there is remarkable consensus that intelligence was a crucial factor in the eventual success of the British-led counterinsurgency.

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[1] Brian Stewart, "Winning in Malaya: An Intelligence Success Story," *Intelligence and National Security* 14, no. 4 (Winter 1999), 268.

[2] John Cloake, *Templer: Tiger of Malaya* (London: Harrap Limited, 1985), 227.

[3] Anthony Short, *The Communist Insurrection in Malaya 1948-1960* (London: Frederick Muller, 1975); Stewart, "Winning in Malaya," 268.

[4] For the role of the hearts and minds effort, see Richard Stubbs, *Hearts and Minds in Guerrilla Warfare: The Malayan Emergency 1948-1960* (Singapore: Eastern Universities Press, 2004); for population control, see Karl Hack, "The Malayan Emergency as Counter-Insurgency Paradigm," *The Journal of Strategic Studies* 32, no. 3 (June 2009), 383-414; for leadership, see Simon C. Smith, "General Templer and Counter-Insurgency in Malaya: Hearts and Minds, Intelligence and Propaganda," *Intelligence and National Security* 16, no. 3, (Autumn 2001), 60-78; for organizational culture, see John A. Nagl, *Learning to Eat Soup with a Knife: Counterinsurgency Lessons from Malaya and Vietnam* (Chicago, IL: The University of Chicago Press, 2005); for British policies, see A.J. Stockwell, "British Imperial Policy and Decolonization in Malaya, 1942-52," *The Journal of Imperial and Commonwealth History* 13, no. 1 (1984), 68-87, and A.J. Stockwell, "Insurgency and Decolonisation during the Malayan Emergency," *The Journal of Commonwealth & Comparative Politics* 25, no. 1 (1987), 71-81.

This chapter evaluates the evolution and contributions of intelligence during the 1948-1960 Malayan Emergency. It begins with a brief overview of the Emergency, which identifies three broad periods, key decisions, and principal leaders. Next, it describes the evolution of collection and analysis during these periods and highlights intelligence shortcomings and successes. The chapter concludes that the Emergency's turning point resulted from the dynamic execution of a good plan that was informed by improving intelligence and led by commanders who fully appreciated the advantages and limits of intelligence at the operational level of war.

<h2 style="text-align:center">An Overview of the Emergency</h2>

The Malayan Emergency can be divided into three broad phases.[5] It began in June 1948 when Sir Edward Gent, the U.K. High Commissioner of Malaya, declared a State of Emergency following the murders of three European planters and their Chinese assistants.[6] At the time, the incident was the most recent in a rising tide of post-World War II violence perpetrated by the Malayan Communist Party (MCP)-led

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[5] Sir Robert Thompson, *Defeating Communist Insurgency: The Lessons of Malaya and Vietnam* (St. Petersburg, FL: Hailer Publishing, 2005), 16; also see Richard L. Clutterbuck, *The Long Long War: Counterinsurgency in Malaya and Vietnam* (New York, NY: Frederick A. Praeger, Publishers, 1966), 4-5. Thompson and Clutterbuck divided the insurgency into periods of "defense" (1948-1951), "offense" (1952-1954), and "victory" (1955-1960). Their second phase coincided with General Templer's tenure, whose contributions they concluded were instrumental to the counterinsurgency's success. R.W. Komer offered a periodization that roughly reflected military leadership changes: 1948-1949, 1950-1952, 1952-1954, and 1954-1960. See R.W. Komer, "The Malayan Emergency in Retrospect: Organization of a Successful Counterinsurgency Effort," Memorandum R-957-ARPA (Santa Monica, CA: The RAND Corporation, February 1972). Karl Hack's phasing aligns with British strategies: 1948-1949 (counter-terrorism), 1950-1952 (clear and hold), 1952-1960 (optimization). See Hack, "The Malayan Emergency as Counter-Insurgency Paradigm," 383-414. Like Hack, this author also distinguishes Emergency periods as a function of British strategy, but prefers to expand the crucial second phase to include the tenures of both Lt Gen Harold Briggs and Gen Templer: 1948-1950 (counter-terrorism), 1950-1954 (population control), and 1954-1960 (consolidation).

[6] CO 717/167/52849/2/1948, f302, [Declaration of Emergency]: inward telegram no 641 from Sir E Gent to Mr Creech Jones, 17 June 1948, in A.J. Stockwell, *British Documents on the End of Empire: Malaya. Part II, The Communist Insurrection, 1948-1953* (London: HMSO Books, 1995), 19-20; John Coates, *Suppressing Insurgency: An Analysis of the Malayan Emergency, 1948-1954* (Boulder, CO: Westview Press, 1992), 7-8.

insurgency.[7] During this early phase the British employed a counterterrorism strategy designed to intimidate the Chinese population of Malaya into submission.[8] It proved ineffective.

The arrival of Lieutenant General Harold Briggs as Director of Operations on 3 April 1950 marked the start of the Emergency's second phase. He conceptualized the challenge as a competition in government.[9] With High Commissioner Sir Henry Gurney's endorsement, Briggs unveiled a scheme—subsequently known as the Briggs Plan—to isolate the MCP.[10] The plan is best known for its controversial resettlement of 500,000 Chinese squatters into "New Villages."[11] However, its central aim was to extend governmental control by enfranchising the Chinese population through improved governance and strengthened local administration.[12] Briggs also introduced a committee system at the federal, state, and district levels to improve governmental coordination and decision making.[13] When Briggs retired in December 1951, he left behind the plan and basic organizational

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[7] Komer, "The Malayan Emergency in Retrospect," 4.

[8] Huw Bennett, "'A very salutary effect': The Counter-Terror Strategy in the Early Malayan Emergency, June 1948 to December 1949," *The Journal of Strategic Studies* 32, no. 3 (June 2009), 417.

[9] Anthony Short, "Communism and the Emergency," in *Malaysia: A Survey*, edited by Wang Gungwu (New York, NY: Frederick A. Praeger, Inc., Publishers, 1964), 155; Clutterbuck, *The Long Long War*, 57; Coates, *Suppressing Insurgency,* 82.

[10] Most of the literature credits Lieutenant General Harold Briggs with the plan to isolate the insurgency by resettling Chinese squatters and improving governance. An exception is Noel Barber who attributes to High Commissioner Sir Henry Gurney the ideas that the Emergency was a struggle for political control and that resettlement would simultaneously integrate Malayan society and disrupt MCP support. Barber also attributes the plan's authorship to Sir Robert Thompson. See Noel Barber, *The War of the Running Dogs: The Malayan Emergency: 1948-1960* (New York, NY: Weybright and Talley, 1971), 61-71, 93-100.

[11] Clutterbuck, *The Long Long War*, 57.

[12] CAB 21/1681, MAL C(50)23, Appendix, 'Federation plan for the elimination of the communist organization and armed forces in Malaya' (the Briggs Plan): report by COS for Cabinet Malaya Committee, 24 May 1950, in A.J. Stockwell, *British Documents on the End of Empire: Malaya. Part II, The Communist Insurrection, 1948-1953* (London: HMSO Books, 1995), 216-221; also see Coates, *Suppressing Insurgency,* 81-84.

[13] Coates, *Suppressing Insurgency,* 85.

structure for success.[14] Despite these positive steps, Malaya's future appeared uncertain.[15]

In February 1952, Templer replaced both Briggs and Gurney.[16] He endorsed the Briggs Plan as his operational prescription and set about energizing the struggle against the insurgents with obvious dynamism.[17] He oversaw the completion of resettlement and initiated further reorganization of key governmental functions, including intelligence. Templer's dynamic implementation of Briggs's plan broke the insurgency before he departed Malaya in 1954.[18]

The Emergency's tipping point occurred roughly between 1951 and 1952, in the middle of the second phase.[19] It was brought about by the leadership of both Briggs and Templer. Most security indicators reached their worst in 1951 and began dramatic, steady improvement during Templer's first year in office. For example, the number of annual incidents and casualties both hit highwater marks in 1951 before falling by almost half in 1952.[20] Insurgent strength also peaked in 1951.[21] Such statistical indicators, coupled with the assassination of High Commissioner Gurney in October 1951, obscured signs of progress

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[14] Victor Purcell, *Malaya: Communist or Free?* (London: Victor Gollancz, 1954), 5-19; Coates, *Suppressing Insurgency,* 9; Karl Hack, "British Intelligence and Counter-Insurgency in the Era of Decolonisation: The Example of Malaya," *Intelligence and National Security* 14, no. 2 (Summer 1999), 145.

[15] Coates, *Suppressing Insurgency,* 109-111; Smith, "General Templer and Counter-Insurgency in Malaya," 63-64.

[16] Kumar Ramakrishna, "'Transmogrifying' Malaya: the impact of Sir Gerald Templer (1952-54)," *Journal of Southeast Asian Studies* 32, no. 1 (February 2001), 82.

[17] Coates, *Suppressing Insurgency,* 118; Ramakrishna, "Transmogrifying' Malaya," 83.

[18] Thompson, *Defeating Communist Insurgency*, 45; Stubbs, *Hearts and Minds in Guerrilla Warfare, 194;* Coates, *Suppressing Insurgency,* 4; Smith, "General Templer and Counter-Insurgency in Malaya," 61.

[19] Tipping point refers to the concept that a buildup of small forces within a system can gradually reach a point at which the system tips irreversibly toward a certain outcome. See Malcolm Gladwell, *The Tipping Point: How Little Things Can Make a Big Difference* (New York, NY: Little, Brown and Company, 2002).

[20] Hack, "The Malayan Emergency as Counter-Insurgency Paradigm," 390-391.

[21] Coates, *Suppressing Insurgency,* 69, 76.

before Briggs's departure.[22] British and Malay leadership were very concerned with the state of affairs as they searched for Briggs's replacement.[23]

In retrospect, tentative counterinsurgency gains were evident in early-to-mid 1951.[24] The MCP strategy offers some evidence of this reality. Chinese resettlement, designed to constrain popular and logistical support to the MCP, began in June 1950 and was almost complete when Briggs left Malaya.[25] The MCP responded to the Briggs Plan with an August 1950 "Guide to the Anti-Resettlement Campaign," which ordered maximum resistance and precipitated the record violence of 1951.[26] By late 1951, however, MCP leaders worried that indiscriminate violence was alienating the civilians upon whom the party depended.[27] Its "October [1951] Resolutions" re-emphasized political mobilization and directed more selective attacks against "imperialist" targets that were uninjurious to the masses.[28] Chen Peng, the MCP's Secretary-General, later claimed that the insurgency was most hopeful in 1949-1950, before resettlement began to constrict its support.[29] Thus, the MCP's strategic adjustments in late 1951 partly explain the reduced levels of violence in 1952 and suggest the Emergency may have been approaching its climax during Briggs's tenure.

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[22] Coates, *Suppressing Insurgency,* 109. High Commissioner Gurney became a target of opportunity on 06 Oct 1951 when his motorcade stumbled into an ambush intended to capture a police ammunition convoy. Although a fortunate accident for MCP forces, the event reinforced British perceptions of deteriorating control in Malaya.

[23] CAB 129/48, C(51)26, 'The situation in Malaya': Cabinet memorandum by Mr. Lyttelton. Annexes I-III, 20 Nov 1951, in A.J. Stockwell, *British Documents on the End of Empire: Malaya. Part II, The Communist Insurrection, 1948-1953* (London: HMSO Books, 1995), 310-315.

[24] Stubbs, *Hearts and Minds in Guerrilla Warfare,* 159; Hack, "The Malayan Emergency as Counter-Insurgency Paradigm," 402.

[25] Komer, "The Malayan Emergency in Retrospect," 55.

[26] Hack, "The Malayan Emergency as Counter-Insurgency Paradigm," 389.

[27] Short, "Communism and the Emergency," 158; Barber, *The War of the Running Dogs*, 134; Hack, "The Malayan Emergency as Counter-Insurgency Paradigm," 390.

[28] Barber, *The War of the Running Dogs*, 134*;* Hack, "The Malayan Emergency as Counter-Insurgency Paradigm," 390.

[29] Hack, "The Malayan Emergency as Counter-Insurgency Paradigm," 397.

Other indicators corroborate 1951 as the beginning of the counterinsurgency's seizure of initiative. According to a 1952 intelligence assessment, MCP casualty rates steadily increased from April 1950 to September 1951.[30] Additionally, the number of contacts per month between government and insurgent forces rose from approximately 60 in July 1950 to 150 in January 1951, remained steady through 1952, and then began a permanent decline by early 1953. Additionally, the insurgent-government kill ratio, which was at its lowest in 1950, began improving in 1951.[31] Clearly, under the leadership of both Briggs and Templer, counterinsurgency forces became increasingly efficient in their work.

During the Emergency's final phase, which followed Templer's tenure, there was continued progress in Malayan governance and security.[32] The characterization of this period as a "mopping-up effort" undervalues the challenges of a political consolidation that secured an enduring peace.[33] The government's steady exploitation of its gains prevented recalcitrant remnants of the MCP from revitalizing the insurgency and ensured the Malayan emergency situation gradually returned to normality.

The Evolution of Intelligence during the Emergency

Counterinsurgency progress in Malaya corresponded with dramatic improvements in intelligence. The intelligence system is uniformly portrayed as being deficient in 1948 and optimal by the Emergency's

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[30] Hack, "The Malayan Emergency as Counter-Insurgency Paradigm," 401.

[31] Hack, "The Malayan Emergency as Counter-Insurgency Paradigm," 403.

[32] Clutterbuck, *The Long Long War*, 5.

[33] Several authors, especially those who attribute the counterinsurgency's success to Templer, describe the Emergency's later years dismissively. For example, see Thompson, *Defeating Communist Insurgency*, 16, and Komer, "The Malayan Emergency in Retrospect," 21. Conversely, Kumar Ramakrishna avers that the finalization of a political settlement and reconciliation between warring factions was not a foregone conclusion. See Kumar Ramakrishna, "Content, Credibility and Context: Propaganda Government Surrender Policy and the Malayan Communist Terrorist Mass Surrenders of 1958," *Intelligence and National Security* 14, no. 4 (Winter 1999), 242-266.

latter stages.[34] Three moments—the beginnings of the Emergency's three phases—best illustrate this evolution.

At the Emergency's outset, the British intelligence system in Malaya was in woeful condition.[35] It was under-organized, under-resourced, and ineffectively led. The fragmented intelligence community consisted of the Malayan Security Service (MSS), which generated assessments; the police's new Special Branch (SB), which informed criminal investigations and came into being in August 1948; and intelligence elements within military units, which advised commanders on matters of tactical employment. Little, if any coordination existed among them.[36]

Furthermore, the organizations were small and had only limited capacity.[37] The SB, for example, consisted of 12 officers and 44 inspectors.[38] Very few government officials knew Chinese.[39] Finally, and perhaps most important, the pre-1948 British intelligence system in Malaya was not focused on the MCP or insurgency, concentrating instead on pan-Malay nationalism which was perceived as the most significant threat to the Crown's imperial position.[40] Riley Sunderland, who wrote a 1964 analysis of intelligence in Malaya, summarized the situation as follows: "In 1948…intelligence on the communist terrorists and their sympathizers was haphazard, uncoordinated, and poorly used."[41]

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[34] Riley Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," Memorandum RM-4172-ISA (Santa Monica, CA: The RAND Corporation, September 1964), v; Bennett, "'A very salutary effect,'" 421; Hack, "British Intelligence and Counter-Insurgency in the Era of Decolonisation," 127.

[35] Bennett, "'A very salutary effect,'" 420.

[36] Hack, "British Intelligence and Counter-Insurgency in the Era of Decolonisation," 128, 132.

[37] Stewart, "Winning in Malaya," 268.

[38] Hack, "British Intelligence and Counter-Insurgency in the Era of Decolonisation," 128.

[39] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," 4; Stewart, "Winning in Malaya," 270; Bennett, "'A very salutary effect,'" 422.

[40] Coates, *Suppressing Insurgency,* 25-28.

[41] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," v, 6.

Consequently, the intelligence system was incapable of supporting either operational or tactical requirements.[42] Assessments of the insurgent situation were glaringly inaccurate. One MSS estimate, dated two days before High Commissioner Gent declared the state of emergency, concluded, "the immediate threat to internal security is negligible."[43] Initial reports underestimated the threat and persistently mischaracterized the communist insurgents as bandits.[44]

Intelligence in the field was as inadequate as it was at headquarters.[45] The system could not generate the information needed for effective military operations.[46] Large-scale sweeps of the jungle by infantry battalions seldom produced contact with guerrilla forces.[47] One infantry battalion commander lamented, "There is no intelligence worth the name…."[48] Thus, the British began implementing their initial counterterrorism strategy without an adequate understanding of the environment, the adversary, or the problem.[49]

British authorities had recognized the systemic intelligence shortfall in Malaya for years.[50] A 1946 Inspector General of Police report urged the creation of a pan-Malayan intelligence organization.[51] Even the British Cabinet commented on the need to develop better intelligence in Malaya.[52] Nevertheless, the system received little emphasis beyond an

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[42] Bennett, "'A very salutary effect,'" 418.
[43] Coates, *Suppressing Insurgency,* 25; Stewart, "Winning in Malaya," 268.
[44] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," 6.
[45] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," 9.
[46] Bennett, "'A very salutary effect,'" 418.
[47] Clutterbuck, *The Long Long War*, 42-54; Komer, "The Malayan Emergency in Retrospect," 18; Karl Hack, "Corpses, Prisoners of War and Captured Documents: British and Communist Narratives of the Malayan Emergency, and the Dynamics of Intelligence Transformation," *Intelligence and National Security* 14, no. 4 (Winter 1999), 215.
[48] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," 10.
[49] Coates, *Suppressing Insurgency,* 79; Bennett, "'A very salutary effect,'" 417-418.
[50] Stewart, "Winning in Malaya," 268.
[51] Coates, *Suppressing Insurgency,* 24.
[52] A.J. Stockwell, *British Documents on the End of Empire: Malaya. Part II, The Communist Insurrection, 1948-1953* (London: HMSO Books, 1995), lxiv.

initial 1948 reorganization.[53] Additionally, the blunt counterterrorism strategy increasingly alienated the Chinese population, limiting their cooperation with governmental authorities and denying a crucial potential intelligence source.

British intelligence in Malaya was still moribund when Briggs conceptualized his successful plan in 1950 at the start of the Emergency's second phase.[54] Upon arriving in April of that year, he conducted an extensive tour of the Federation to form his own appreciation of the challenge.[55] It is arguable that, with two years of accrued experience, intelligence analysts and their assessments also contributed to Briggs's balanced understanding of the MCP and battlespace.[56] Nevertheless, he was sufficiently unimpressed by the

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[53] Coates, *Suppressing Insurgency,* 25; Hack, "British Intelligence and Counter-Insurgency in the Era of Decolonisation," 127.

[54] Hack, "Corpses, Prisoners of War and Captured Documents," 214-215.

[55] Coates, *Suppressing Insurgency,* 81-82.

[56] While British intelligence in Malaya was imperfect when Briggs arrived in 1950, circumstantial evidence suggests it was improving. Two related points support this conclusion. First, the primary source of intelligence on the MCP during the early years of the Malayan Emergency came from the interrogations and documents of captured and surrendered enemy personnel (CEP/SEP). According to British records, from 1948 through March 1950—the month before Briggs arrived in Malaya—there were 1,293 CEP/SEP (783 captured; 510 surrendered) in custody. Second, a review of British assessments of the Emergency between 1948 and 1950 suggests an increasingly refined appreciation of the situation. As an example, John Strachey, the British Secretary of State for War, circulated an insightful assessment of the Emergency dated 12 May 1950 that resulted from the analysis of a captured MCP pamphlet which was entitled "Present day situation and duties." According to A.J. Stockwell, the pamphlet was written in June 1949; captured later that year; transmitted to London in November; and reached the Secretary's attention in May 1950. The Briggs Plan and its prescient assessment was also written in May 1950. For an insightful analysis on the MCP and Emergency derived from interviews with SEPs, see Lucian W. Pye, *Guerrilla Communism in Malaya: Its Social and Political Meaning* (Princeton, NJ: Princeton University Press, 1956), 115-342. For more on the importance of SEPs to the practice of intelligence, see Clutterbuck, *The Long Long War,* 101-111; Barber, *The War of the Running Dogs, 112-116;* Komer, "The Malayan Emergency in Retrospect," 72-75; and Hack, "Corpses, Prisoners of War and Captured Documents." For British statistics on captured and enemy personnel, see Coates, *Suppressing Insurgency,* 190-202. For a copy of Mr. Strachey's assessment, see PREM 8/1406/2, MAL C(50)12, 'The present day situation and duties of the Malayan Communist Party': note by Mr Strachey for the Cabinet Malaya Committee commenting on a captured MCP document, 12 May 1950, in A.J. Stockwell, *British Documents on the End of Empire: Malaya. Part II, The Communist Insurrection, 1948-1953* (London: HMSO Books, 1995), 213-216.

intelligence system to label it the Emergency's "Achilles heel" and immediately set about correcting it.[57]

Briggs instituted several structural improvements to intelligence during his tenure. By May 1950 he established a federal Intelligence Advisory Committee to facilitate the sharing of critical information among government agencies.[58] In August he created the position of Director of Intelligence to coordinate all collection and analytical activities, and he appointed the head of SB, Sir William Jenkin, to this dual role.[59] Briggs also presided over the expansion of SB and creation of its training school.[60] Furthermore, on the tactical front, he issued guidance for military units to replace large-unit sweeps with smaller, intelligence-led operations.[61] The cumulative effects of intelligence take time, and the benefits of Briggs's organizational changes were not immediate.[62] Nevertheless, the increasing efficiency of counterinsurgency efforts by late 1951 suggests an enhanced understanding of the situation by British authorities.

Like Briggs, Templer understood the paramount importance of intelligence.[63] Granted sweeping powers as both High Commissioner and Director of Operations, he consolidated and expanded the organizational changes of his predecessor.[64] He also made intelligence, including penetration of the MCP, the principal aim of all counterinsurgency

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[57] Hack, "British Intelligence and Counter-Insurgency in the Era of Decolonisation," 128.

[58] Nagl, *Learning to Eat Soup with a Knife*, 71; Hack, "British Intelligence and Counter-Insurgency in the Era of Decolonisation," 128.

[59] Hack, "British Intelligence and Counter-Insurgency in the Era of Decolonisation," 129.

[60] Hack, "British Intelligence and Counter-Insurgency in the Era of Decolonisation," 128-129; Cloake, *Templer, 231.*

[61] Komer, "The Malayan Emergency in Retrospect," 50-51.

[62] Short, *The Communist Insurrection in Malaya 1948-1960,* 359; Nagl, *Learning to Eat Soup with a Knife*, 92.

[63] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," vi-vii.

[64] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," vi, 19.

activity.[65] Templer, in his own words, made intelligence his "absolute top priority."[66]

Templer's faith stemmed from his ample familiarity with intelligence. In addition to experience exploiting and consuming intelligence as a commander at various levels within the British armed forces, he also served multiple assignments within the intelligence community. Templer had led the collection and analysis of intelligence in support of operations as Deputy Director of Intelligence at the General Headquarters of the British Expeditionary Force in Western Europe from 1938 until 1940.[67] The German army's rapid advance through the Low Countries and the British evacuation from Dunkirk probably left an indelible impression with him on both the advantages and limits of intelligence. In 1946, Templer returned to the War Office as the Director of Military Intelligence.[68] Furthermore, as Vice-Chief of the Imperial General Staff between 1948 and 1950, British military intelligence remained part of his portfolio.[69] By his appointment to Malaya in 1952, Templer was very familiar with all aspects of intelligence activity and well postured to optimize the system in Malaya. "As a former DMI [Director of Military Intelligence]," Templer asserted, "I know my onions."[70]

With sweeping powers as the dual-hatted High Commissioner and Director of Operations, Templer consolidated and expanded the organizational changes of his predecessor. Before he appointed Jack Morton as Director of Intelligence on 1 April 1952, Templer made the position a standing member of the Director of Operations Committee and placed it on par with the service and bureaucracy chiefs.[71] He also

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[65] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," vii.
[66] Cloake, *Templer,* 227.
[67] Cloake, *Templer,* 66-92; Coates, *Suppressing Insurgency,* 112.
[68] Cloake, *Templer,* 168-173; Coates, *Suppressing Insurgency,* 113.
[69] Cloake, *Templer,* 173-187.
[70] Cloake, *Templer,* 228.
[71] CO 1022/60, no 3, [Reorganisation of government]: inward telegram no 268 from Sir G Templer to Mr Lyttelton on new measures, 28 Feb 1952, in A.J. Stockwell, *British Documents on the End of Empire: Malaya. Part II, The Communist Insurrection, 1948-*

required that the services submit all operations plans to the Director of Intelligence for review.[72] Templer separated the positions of Director of Intelligence and Chief of SB, empowering the former to coordinate and evaluate all intelligence activities in Malaya.[73] The division of labor freed the Director of Intelligence to concentrate on operational-level analysis and support to the commander and staff; it also permitted SB to focus on collection operations against the MCP.[74] Later in 1952, the position of SB was elevated within police headquarters to provide it a broadened aperture and facilitate its support relationships.[75] Finally, during Templer's tenure, the army augmented SB with intelligence officers to facilitate reporting from and planning support to tactical forces.[76] Together with his intelligence director, Templer galvanized the Malayan intelligence system into an effective information gathering and analysis organization.

From his years of experience, Templer understood the critical, special relationship between a commander and his Director of Intelligence. He invigorated the position in several ways, including those mentioned above. But, perhaps most importantly, he maintained an open and direct channel between himself and his principal intelligence advisor.[77] Templer chose his man carefully. Morton was a civilian and career intelligence officer with years of experience in the region who had most recently led the Singapore branch of the British security service

1953 (London: HMSO Books, 1995), 373-376; Short, *The Communist Insurrection in Malaya 1948-1960*, 360; Cloake, *Templer,* 229; Coates, *Suppressing Insurgency,* 124; Nagl, *Learning to Eat Soup with a Knife*, 92.

[72] Cloake, *Templer,* 229.

[73] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," 26; Cloake, *Templer,* 229.

[74] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," 19-21.

[75] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," 23; Stewart, "Winning in Malaya," 279.

[76] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," 27.

[77] Cloake, *Templer,* 228.

known as MI5.[78] He was the chief architect of many of Templer's organizational changes.[79] He also became part of Templer's inner circle and one of his most intimate advisors.[80] This occurred because Templer made it so. "Mind you," Templer told Morton, "we've got to like each other. It won't work otherwise."[81] By the time of his departure in 1954, Templer had instilled confidence and dynamism into the intelligence system, as he did throughout Malaya.

While Morton informed the commander and operational planning process, SB worked to improve what was known about the MCP and overall situation. Only SB had the authority to operate secret agents.[82] They also became the central clearinghouse for all captured and surrendered MCP documents and personnel.[83] As SB built a more clear understanding of the insurgency, they focused their efforts to penetrate guerilla cells with spies. Furthermore, their analytical products became the well from which Morton's advice drew. SB also provided army units increasingly detailed assessments with which to plan tactical operations.[84]

Tactical commanders in Malaya combined the intelligence received from SB with the background information they assembled while patrolling their assigned districts.[85] They performed their own analysis to deduce the likely locations and times of MCP activity, and supplemented this with information from local sources among the population. Furthermore, when ambushes and other discreet operations failed to make contact with the enemy, they narrowed the search for him.

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[78] MI5 is Military Intelligence, Section 5, which performs British counter-intelligence activities. See Cloake, *Templer,* 228-230; Coates, *Suppressing Insurgency,* 124; Nagl, *Learning to Eat Soup with a Knife*, 91.
[79] Cloake, *Templer,* 228-229.
[80] Cloake, *Templer,* 229.
[81] Cloake, *Templer,* 229.
[82] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," 21.
[83] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," 21.
[84] Frank Kitson, *Low Intensity Operations: Subversion, Insurgency, and Peacekeeping* (St. Petersburg, FL: Hailer Publishing, 2005), 96.
[85] Kitson, *Low Intensity Operations*, 96-97.

Contact, or the lack of it, helped to build an increased understanding of MCP activity in the area.[86] In this way intelligence from operational-level organizations enabled tactical action.[87]

During the Emergency's third phase, the intelligence system generated a steady stream of accurate, actionable intelligence. Gone were the generalities characteristic of early intelligence reports. Instead, assessments detailed MCP organizational structure; locations; and, most impressively, the identities of known and suspected guerrillas.[88] One staff review in the late 1950s credited intelligence with initiating the vast majority of contacts between security forces and the MCP that resulted in the capture or killing of guerrillas.[89] Comfortable with their understanding of the conflict and the increasing gains in security, British authorities could shift their focus to the Malayanization of governance and the decolonization of Malaya that preserved the peace.

Conclusions

The Malayan Emergency is an intelligence success story. However, the positive correlation between the effectiveness of the overall counterinsurgency effort and the effectiveness of the intelligence system during the Malayan Emergency does not suggest a straightforward causal relationship. Intelligence, operations, and several other factors interacted in multifarious and mutually reinforcing ways. Psychological operations to win hearts and minds, population control through resettlement and food rationing, the dynamic leadership of Templer, British organizational learning, and the policies of decolonization and Malayanization also contributed to the Emergency's successful conclusion. Nevertheless, the correlation between intelligence and counterinsurgency is impressive. As intelligence improved, security did

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[86] Kitson, *Low Intensity Operations*, 97-98.
[87] For examples of how intelligence enabled tactical action, see the scenario provided in Kitson, *Low Intensity Operations*, 102-131; and the anecdotes recorded in Clutterbuck, *The Long Long War*, 101-131.
[88] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," 56-63.
[89] Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," 1.

as well. And, as security improved, Chinese civilians provided the information needed to defeat the insurgency. Thus, there was a naturally reinforcing relationship between operational effectiveness and intelligence effectiveness.

At the Emergency's outbreak, intelligence and security operations were in disarray. During the late 1940s, British intelligence failed to recognize the emergence of a communist insurgency. Additionally, its insufficient understanding of the problem contributed to a counterterrorism strategy that delayed progress by as much as two years.

The intelligence system in Malaya was still in poor condition when Briggs arrived in 1950. It remains unclear whether his prescient conceptualization of the environment and problem was informed by improving assessments, or if he conducted the analysis himself. Whichever the explanation, it is clear that Briggs placed enormous importance on intelligence and improved the system to the extent he could given his limited authority. Among his most important reforms was the creation of the Director of Intelligence position to shoulder the responsibilities that lay beyond tactical-level intelligence. Despite the limitations to Briggs's authority, he conceived and began to implement the plan that would set the conditions for success.

Templer's energetic execution of the Briggs Plan produced substantial counterinsurgency gains. Furthermore, his progressive intelligence reforms invigorated and functionalized both intelligence and operations. He enhanced the former by removing bureaucratic obstacles to effective collection and analysis. Meanwhile, he improved operations by making intelligence integral to planning and execution. Templer's experience with and appreciation of intelligence prepared him to effectively lead his intelligence apparatus. He did so in collaboration with an empowered and capable Director or Intelligence, with whom he

enjoyed the special relationship critical to the success of intelligence at the operational level of war.

Chapter 5

Design

If I always appear prepared, it is because before entering an undertaking, I have meditated long and have foreseen what might occur. It is not genius [that] reveals to me suddenly and secretly what I should do in circumstances unexpected by others; it is thought and preparation.

Napoleon Bonaparte

If you ask the wrong question, you are certain to come up with the wrong answer.

Colin S. Gray

Napoleon Bonaparte's *coup d'oeil* was the subject of legend. His disciple Baron Antoine-Henri de Jomini described it as the ability to form reasonable suppositions about the future despite the uncertainties of the present, and he concluded that this learnable skill was "the most valuable characteristic of a good general."[1] Probably with Napoleon in mind, Carl von Clausewitz asserted that genius was "the harmonious combination" of intellect and determination which "rises above all rules."[2] As for the Corsican, he attributed his talent of foresight to his capacity for reflection.[3]

The future success of the American armed forces will depend largely on the capacity of its commanders and organizations to reflect. The psychologist David Campbell, in his decades-long study of U.S. Army general officers, identified a common personality profile, which he labeled

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[1] Antoine-Henri Jomini, *The Art of War*, translated by Capt G.H. Mendell and Lt W.P. Craighill (Mineola, NY: Dover Publications, Inc., 2007), 250, 306.
[2] Carl von Clausewitz, *On War*, edited by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press), 100-112, 136.
[3] Napoleon Bonaparte, Great-Quotes.com, Gledhill Enterprises, 2011, accessed May 4, 2011, http://www.great-quotes.com/quote/143366.

"Aggressive Adventurer."[4] These outstanding Americans were dominant, competitive, action-oriented, patriotic, and drawn to physically adventurous activities.[5] Reflection was not a prevalent characteristic.[6] As Lieutenant General Walter F. Ulmer, Jr. argued in a 1998 article on military leadership, the traits of the "Aggressive Adventurer" are ideal for "heroic competence on the battlefield" but misplaced in situations that require "contemplation before action, patience with ambiguity, and an appreciation for broad participation in the decisionmaking process."[7] The arena Ulmer described was that of modern strategy formulation. If many military leaders are not predisposed to be reflective strategists, can structured cognitive processes help compensate?

Charting a course through an uncertain future is not peculiar to military professionals. Leaders in government, business, and academe must also navigate their organizations through difficult challenges and complex situations. Most leaders intuitively grasp that choosing a direction without first knowing what lies ahead can lead to disastrous consequences. One way they may compensate is by employing analysts to bolster their powers of anticipation. However, like their leaders, professional analysts are only as good as the questions they ask.[8] With an endless assortment of potential problems and possible futures, how

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[4] David P. Campbell, "The Psychological Test Profiles of Brigadier Generals: Warmongers or Decisive Warriors?" in *Assessing Individual Differences in Human Behavior: New Concepts, Methods, and Findings*, edited by David J. Lubinski and Renee V. Dawis (Palo, Alto, CA: Davies-Black Pub., 1995), 145-175; also found in Richard L. Hughes, et al., *Leadership: Enhancing the Lessons of Experience*, 2nd Edition (Chicago, IL: Irwin, 1996), 183.
[5] Hughes, et al., *Leadership: Enhancing the Lessons of Experience*, 183
[6] In Samuel Huntington's 1957 book *The Soldier and the State*, he summarizes contemporary literature on the military mind which seems to agree with the psychological profile developed by Campbell and commented on by Hughes and Ulmer. Huntington wrote, "Military and civilian writers seem to agree that the military mind is disciplined, rigid, logical, scientific; it is not flexible, tolerant, intuitive, emotional." See Samuel P. Huntington, *The Soldier and the State: The Theory and Politics of Civil-Military Relations* (Cambridge, MA: Harvard University Press, 1957), 59-60.
[7] Walter F. Ulmer, Jr., "Military Leadership into the 21st Century: Another "Bridge Too Far?" *Parameters* (Spring 1998), 16-17.
[8] Colin S. Gray, "Stability Operations in Strategic Perspective: A Skeptical View," *Parameters* (Summer 2006), 10.

can strategic thinkers have at least decent assurance that they are asking the right questions?

One answer is Design, which is the topic of this chapter. The chapter begins by explaining uncertainty and complexity through the lens of systems theory, which is the theoretical underpinning of Design. Next, it considers the complexity of social systems and their perversely ill-structured or so-called "wicked" problems. It describes Design as a highly complex mental process that supposes the future, reflects on the past, and produces an understanding of both the problem and optimal solution. The chapter concludes that Design is a problem-solving method equipped to help manage the uncertainty and complexity of our world and useful in identifying and addressing complex problems.

Uncertainty, Complexity, and Systems Theory

Because the Design discourse draws upon and exists alongside systems, information, complexity, and social theories, it will be useful to introduce a few key concepts at this point. Much is written on these subjects that does not require repetition here.[9] Even a synopsis is beyond this work's scope. Thus, the following outlines only a few basic touchpoints for later evaluation.

Complexity is the source of much uncertainty. The complex, adaptive systems that comprise our world make the future unforeseeable.[10] Uncertainty presents a confounding problem to the strategist, who is charged with shaping that future. Thus, strategists who ignore complexity depend heavily on the vagaries of chance. Conversely, those who appreciate and accommodate complexity, while

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[9] This chapter leans heavily on the following scholarship regarding the theories of complexity, systems, and society: On complexity, see M. Mitchell Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos*, (New York, NY: Simon & Schuster Paperbacks, 1992) and Albert-Laszlo Barabasi, *Linked: The New Science of Networks*, (Cambridge, MA: Perseus Publishing, 2002); on systems see Peter Checkland, *Systems Thinking, Systems Practice* (New York, NY: John Wiley & Sons, 1993); on social problems see Horst W.J. Rittel and Melvin M. Webber, "Dilemmas in a General Theory of Planning," *Policy Sciences* 4 (1973), 160-166.

[10] Waldrop, *Complexity,* 145-147.

not guaranteed success, improve their odds of achieving a favorable outcome.

According to Peter Checkland, author of *Systems Thinking, Systems Practice*, complexity is best understood through a systems-thinking approach.[11] Checkland defined a system as "the idea of a set of elements connected together which form a whole…[with] properties which are properties of the whole, rather than properties of its component parts."[12] A system's complexity is primarily a function of three related variables: scale, interconnectedness, and interactivity. The latter two properties have external and internal dimensions. First, the size of a system factors into its complexity. *Ceteris paribus*, a system with many elements has the potential to be more complex than a simple system with few subcomponents. A system's internal and external connectivity also figures into its complexity. The degree to which a system is linked to its environment determines, in part, its ability to influence and be influenced by external factors. Open systems are connected and postured to import and export material, energy or information.[13] Students of thermodynamics, biology, and sociology, for example, study open systems.[14] In contrast, closed systems are unconnected, unable to transfer internal matter to the outside, and vice versa; thus, they often behave mechanically.[15]

Additionally, a system's intrinsic connectedness determines the speed and extent to which inputs diffuse internally. In the realm of

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[11] Checkland, *Systems Thinking, Systems Practice,* 3-7.

[12] Checkland, *Systems Thinking, Systems Practice,* 3.

[13] Ludwig Von Bertalanffy, "The Theory of Open Systems in Physics and Biology," *Science* 111, No. 2872 (13 Jan 1950), 23; Checkland, *Systems Thinking, Systems Practice,* 82-83.

[14] Bertalanffy, "The Theory of Open Systems in Physics and Biology," 25-27; Kenneth E. Boulding, "General Systems Theory – The Skeleton of Science," *Management Science* 2, No. 3 (April 1956), 134; Checkland, *Systems Thinking, Systems Practice,* 104-105.

[15] Bertalanffy, "The Theory of Open Systems in Physics and Biology," 23; Checkland, *Systems Thinking, Systems Practice,* 104-105.

cybernetics, these connections take the form of feedback loops.[16]

Charles Perrow, in *Normal Accidents: Living with High-Risk Technologies*, explained that a highly coupled system is tightly interwoven. [17] Change in these systems, whether originating from within or without, promptly affects all subcomponents. Conversely, loosely coupled systems transfer material, energy or information more slowly and less completely. An effect taken upon or within one part of this kind of system will not necessarily manifest itself elsewhere. Loosely coupled systems absorb shock more easily, while highly coupled systems find new equilibriums more rapidly.

Complexity is also a function of interactivity. As systems relate to other systems, they change one another. While it is obvious that only open systems experience external interaction, interactivity comes in degrees. Frequent intercourse facilitates adaptation and makes a system more reflective of its environment.[18] Systems that infrequently interact with outside agents exhibit significant distinctness. Interactivity may also be endogenous. Systems with highly interactive subcomponents are dynamic, demonstrating a vitality by generating change from within.[19] In contrast, systems with low levels of internal activity display less ebullience.

Our world is a complex, adaptive system of systems; it is massive in scale, highly interconnected, and exceptionally dynamic. No person, place, thing or event is ever completely isolated.[20] Frequently interacting

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[16] Norbert Wiener, *The Human Use of Human Beings: Cybernetics and Society* (New York, NY: Anchor Books, 1954), 33; Adam Brate, *Technomanifestos: Visions from the Information Revolutionaries*, (New York, NY: Texere, 2002), 14.

[17] Charles Perrow, *Normal Accidents: Living with High-Risk Technologies* (Princeton, NJ: Princeton University Press, 1999), 62-100.

[18] See the discussion on fast transients in John Boyd, "Patterns of Conflict," edited by Chet Richards and Chuck Spinney (Defense and the National Interest, January 2002): 5.

[19] Checkland, *Systems Thinking, Systems Practice,* 74-82; Waldrop, *Complexity,* 10-11.

[20] In his 1974 work *Computer Lib*, the information revolutionary Theodor Holm Nelson described the interconnectedness of our world when he concluded, "Everything is deeply intertwingled." As described in Brate, *Technomanifestos*, 218.

subsystems continually seek new equilibriums and are themselves bubbling with the interactions of internal agents. [21] Our world includes innumerable combinations of open and closed, tightly coupled and loose, dynamic and static systems, as well as many in between. Additionally, it all exists in a temporal context of both past and future.[22] This amorphous and continually changing milieu is unknowable in its entirety. It is complex, inseparable, and alive.

Social Systems and Wicked Problems

Among the most complex systems of our world are those comprised of men and women—social systems. Human beings are self-conscious agents with a freedom of choice; this tendency infuses social systems with dynamism.[23] Checkland described social systems as "a mixture of a rational assembly of linked activities (a human activity system) and a set of relationships such as occur in a community (i.e. a natural system).[24] According to Checkland, the relational component derives from man's social nature.[25] Studies of group dynamics reveal common behavioral patterns (e.g., formation of subgroups and alliances; development of tension and emotions, etc.).[26] These tendencies give social systems an element of predictability akin to many natural systems.

However, social systems are also malleable, peculiar, and surprising. A central feature is the presence of what Checkland calls human activity systems: "sets of human activities more or less consciously ordered in wholes as a result of some underlying purpose or mission."[27] That these systems are purposefully constructed and subject

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[21] Waldrop, *Complexity*, 11-12; Barabasi, *Linked*, 6.
[22] Richard E. Neustadt and Ernest R. May, *Thinking in Time: The Use of History for Decision Makers* (New York, NY: The Free Press, 1986).
[23] Checkland, *Systems Thinking, Systems Practice,* 116; Waldrop, *Complexity,* 11; Barabasi, *Linked,* 6.
[24] Checkland, *Systems Thinking, Systems Practice,* 121.
[25] Checkland, *Systems Thinking, Systems Practice,* 120.
[26] Checkland, *Systems Thinking, Systems Practice,* 120.
[27] Checkland, *Systems Thinking, Systems Practice,* 111.

to redesign is not unique. The same is true of all designed systems.[28]
What sets social systems apart is the self-determination of their course
from within the system.[29]

Finally, social systems change as they respond to challenges.
Internal or external stimuli that the system accommodates insufficiently
will prompt adaptation. While problems induce change, the response of
a social system is not automated. Redesign, like the original design, is
elective; thus, how the problem situation is understood shapes
consideration of its possible solutions.[30] Understanding is seldom
straightforward because social problems are as complex as the systems
that produce them.

Social problems reflect the complexity of their systems and are, in
turn, also a source of complexity. Horst Rittel and Melvin Webber, in
their 1973 article "Dilemmas in a General Theory of Planning," used the
adjective "wicked" to describe most societal problems.[31] These problems
are by nature ill-structured and lacking in objective evaluation criteria.[32]
Hence, the character of a problem, or even its existence, is a matter of
perspective. A further complication arises from society's plural nature.
The presence of multiple groups, especially if in competition, makes a
common viewpoint of the problem unlikely.[33] Consequently, there is
seldom a definitive formulation of a social problem.[34] As Checkland
notes, real-world problems reveal human beings wishing to take
purposeful action; and there can never be a single account of purposeful
activity.[35]

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[28] Checkland, *Systems Thinking, Systems Practice,* 110, 118-119.
[29] Checkland, *Systems Thinking, Systems Practice,* A50.
[30] Checkland, *Systems Thinking, Systems Practice,* 154-155.
[31] Rittel and Webber, "Dilemmas in a General Theory of Planning," 160.
[32] Rittel and Webber, "Dilemmas in a General Theory of Planning," 160; Checkland,
Systems Thinking, Systems Practice, 155.
[33] Rittel and Webber, "Dilemmas in a General Theory of Planning," 160.
[34] Rittel and Webber, "Dilemmas in a General Theory of Planning," 161.
[35] Checkland, *Systems Thinking, Systems Practice,* A54.

Additionally, the interconnectedness of the system and multiple vantages of its agents increase the odds that the problem inter-relates with other problems, as a symptom, a cause, or both.[36] Further complicating matters, the ever-changing nature of social systems makes each moment, and therefore each problem, unique.[37] It also makes these problems unknowable in their entirety. Finally, because solutions are also subjectively evaluated, each conceptualization of the problem is bound to create multiple potential paths of action from which to choose. Strategists aiming to steer the system must account for the mixture of worldviews and agendas that present alternative and competing futures.

In sum, social systems present strategists with complex challenges. Successful strategy formulation requires a holistic appreciation of the relevant systems—their scale, interconnectivity, and interactivity. Such strategies also need sufficient flexibility to accommodate the system's dynamism over time, including the shifting vantages of its multiple stake-holders. To offset the multiple challenges outlined above, a systems-thinking approach requires holistic solutions. This capability to deal with the inherent complexity of strategy constitutes the virtue of Design.

Design

Design is a multidisciplinary problem-solving approach. Brian Lawson, author of the 1980 book *How Designers Think*, asserted that designers "learn to understand problems that other people may find hard to describe and create good solutions for them."[38] Professional designers include architects; fashion designers; urban planners; engineers; and, increasingly, military officers.[39] What brings these diverse fields together

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[36] Rittel and Webber, "Dilemmas in a General Theory of Planning," 165.
[37] Rittel and Webber, "Dilemmas in a General Theory of Planning," 163-164.
[38] Bryan Lawson, *How Designers Think: The Design Process Demystified*, 4th Edition (Burlington, MA: Architectural Press, 2006), 5.
[39] Lawson, *How Designers Think,* 4-5. Lawson discusses the multidisciplinary nature and broad utility of Design , but does not address the applicability of Design to the national security professional.

is the complexity of their problems and the complexity-tolerant method they use to address them. Before specifically discussing the application of Design to the profession of arms, we must first establish what Design is and what designers do.

Design is a "highly complex mental process."[40] According to Lawson, it is a "negotiation between problem and solution through the activities of analysis, synthesis, and evaluation."[41] Regarding the primary activities in this basic model of Design, analysis is the exploration of the system and problem; synthesis entails the "generation of solutions;" and evaluation involves the appraisal of suggested solutions against criteria identified during analysis.[42] Design moves back and forth between the problem and solution by cycling continually through its activities. From this non-linear and ongoing process, Lawson contends, both the problem and solution emerge together.[43]

Lawson disassembles the fundamental activities of Design into five tasks: "formulating," "moving," "representing," "evaluating," and "reflecting." In doing so, he constructs a sophisticated model that gives fidelity to both the process and the necessary skills of designers.[44] "Formulating" refers to the function of understanding and describing the problem.[45] It is roughly equivalent to the activity of analysis in the rudimentary model. As previously noted, this task can be complicated when the problem is unstructured, which is typical in social systems. Because the problem is part of its environment, formulation requires an understanding of the problem's context. Furthermore, how the problem is conceptualized influences all subsequent calculations.

"Moving" is akin to the notion of synthesis. The term suggests motion and involves making progress from understanding a problem to

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[40] Lawson, *How Designers Think,* 49.
[41] Lawson, *How Designers Think,* 49.
[42] Lawson, *How Designers Think,* 37.
[43] Lawson, *How Designers Think,* 48.
[44] Lawson, *How Designers Think,* 291.
[45] Lawson, *How Designers Think,* 291.

the generation of ideas and solutions.[46] Designers are solution-focused
and, like strategists, naturally drawn to this activity. However,
developing solutions without some understanding of the problem can be
misguided. Nevertheless, Design is not a linear process and
understanding is not a prerequisite for conjuring possible solutions. As
part of the complex and adaptive system in which they exist, wicked
problems are seldom fully knowable. Thus, uncertainty always exists.
"Formulating" does not strictly precede "moving" or the process would
succumb to paralysis. Finally, as Karl Popper argued in *The Logic of
Scientific Discovery*, hypotheses can only be refuted, never proven.[47]
Dismissed and unsuccessful solutions sometimes help clarify our
understanding of the problem. Ultimately, designers must use their
imaginations to appreciate what they can about an uncertain situation
and conjure creative solutions.

"Representing" is an essential activity unacknowledged in the
earlier model. It entails depicting the relationship between a problem
and its solution and may occur in many forms, including through
language, computer models, and drawings. Lawson asserts that the
most common medium is graphic.[48] Visual portrayals force designers to
clarify their understanding of the situation and convey simply the
perceived nature of the problem and solution. Because Design is a
collaborative effort, representation aids the process in two additional
ways. First, portraits help foster a shared understanding among stake-
holders who might otherwise talk past each other. Representations also
communicate to those responsible for implementing the solution the
overarching concept of their endeavor.

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[46] Lawson, *How Designers Think,* 291.

[47] Karl Popper, *The Logic of Scientific Discovery* (New York, NY: Routledge Classics,
2005). This point is also made in Rittel and Webber, "Dilemmas in a General Theory of
Planning," 166.

[48] Lawson, *How Designers Think,* 291.

"Evaluating" refers to the fact that designers regulate system actions by considering possible solutions against evaluation criteria.[49] For ill-structured problems, these criteria may be subjective and often lack consensus among relevant agents.[50] The identification of appraisal criteria occurs as the designer builds an understanding of the situation. Because complex systems are unknowable, designers must rely on their imaginations as well as their analytical skills to assess the evaluation criteria used for appraisals. Effective evaluations will reveal the need to reconceive problems and solutions.

Finally, designers reflect on all aspects of their endeavor in a "continuous monitoring and learning process."[51] A good Design process behaves like what Checkland labels an appreciative system.[52] According to him, the "interacting flux of events and ideas unfolding through time" is like a "two-stranded rope." The designer observes the flux, perceives reality, judges it, injects ideas, and catalyzes action that becomes part of the event stream.[53] Additionally, without an ultimate source of standards for appraisal (as is typical of social problems), the system's history becomes part of the basis for evaluation.[54] Learning occurs by reflecting on the system over time, and Donald Schön calls professionals with the skills to conduct such reflection "reflective practitioners."[55]

Vijay Govindarajan and Chris Trimble, in their article "Strategic Innovation and the Science of Learning" offer several recommendations to reflective practitioners that will inform our understanding of Design and will prove useful when juxtaposed with the practice of intelligence. First, instead of becoming overwhelmed with planning details, reflective

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[49] Lawson, *How Designers Think,* 291.
[50] Rittel and Webber, "Dilemmas in a General Theory of Planning," 160.
[51] Lawson, *How Designers Think,* 291.
[52] Checkland, *Systems Thinking, Systems Practice,* A50-A52.
[53] Checkland, *Systems Thinking, Systems Practice,* A51.
[54] Checkland, *Systems Thinking, Systems Practice,* A52.
[55] Donald A. Schön, *The Reflective Practitioner: How Professionals Think in Action* (London: Temple Smith, 1983); Lawson, *How Designers Think,* 291.

practitioners should focus attention on a small number of critical unknowns that could have decisive consequences for organizational success or failure.[56] Second, analytical resources should concentrate on a plan's underlying assumptions rather than attempting to predict the future.[57] Third, when forecasting is necessary, it should take the form of trend analysis, without being forced to speculate on specific dates or details.[58] The authors also suggest periodic strategic reviews that account for rapidly changing environments without losing sight of historical lessons.[59] Finally, they advise measuring leading indicators that may anticipate the future rather that metrics that represent the existing environment.[60] Like Checkland, Govindarajan and Trimble conclude that because predicting the future of complex systems is impossible, learning from the past becomes an essential part of innovation.[61] "Reflecting" facilitates learning in an inventive Design process.

In review, what do designers do? Most simply put, they design the future by holistically and iteratively addressing the challenges of the present. According to Nigel Cross in his 1990 article "The Nature and Nurture of the Design Ability," designers "produce novel unexpected solutions, tolerate uncertainty, work with incomplete information, apply imaginative and constructive forethought to practical problems and use drawings and other modeling media as a means of problem solving."[62] Restated in terms of Lawson's model, they systemically conceptualize, creatively solve, artfully represent, incisively evaluate, and insightfully

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[56] Vijay Govindarajan and Chris Trimble, "Strategic Innovation and the Science of Learning," MIT Sloan Management Review 45, no. 2 (Winter 2004), 70.

[57] Govindarajan and Trimble, "Strategic Innovation and the Science of Learning,"71. Refuting underlying assumptions refutes the theory or hypothesis on which the plan is built. Also see Popper's *The Logic of Scientific Discovery.*

[58] Govindarajan and Trimble, "Strategic Innovation and the Science of Learning,"72.

[59] Govindarajan and Trimble, "Strategic Innovation and the Science of Learning,"72-73.

[60] Govindarajan and Trimble, "Strategic Innovation and the Science of Learning,"73.

[61] Govindarajan and Trimble, "Strategic Innovation and the Science of Learning,"74.

[62] Nigel Cross, "The Nature and Nurture of the Design Ability," *Design Studies* 11, no. 3 (1990), 127-140; also quoted in Lawson, *How Designers Think,* 290.

reflect upon complex challenges as they construct a better tomorrow. Good designers also bring with them the interpersonal, communication, and advocacy skills necessary to build some degree of consensus.

Conclusions

We live in a complex and adaptive system of systems that is enormous, intertwined, and amazingly alive. Systems thinking enables an appreciation of complex systems and a recognition of their continual change. It also assists the designers in identifying and solving the ill-structured problems that propel social systems forward. Designers grapple with social challenges through a mental process by which they conceptualize the problem as a product of its environment, invent a solution, visualize the problem-solution relationship, appraise the solution, and learn through reflection.

Design is tolerant of complexity, which makes it a useful method for solving wicked problems. Its systems thinking approach engenders a holistic appreciation of the problem and solution, thereby decreasing the gap between understanding and reality. Its collaborative nature accounts for the pluralities of decisionmaking in social systems. Its iterative character gives it the flexibility to accommodate the uncertainty and change inherent in complex problems. Design is well suited to address complex social challenges, including the most wicked of all—those that spark and are encountered in war.

Chapter 6

Operational Design

The first, the supreme, the most far-reaching act of judgment that the statesman and commander have to make is to establish by that test the kind of war on which they are embarking; neither mistaking it for, nor trying to turn it into, something that is alien to its nature. This is the first of all strategic questions and the most comprehensive.

Carl von Clausewitz

Now if the estimates made in the temple before hostilities indicate victory it is because calculations show one's strength to be superior to that of his enemy; if they indicate defeat, it is because calculations show that one is inferior. With many calculations, one can win; with few one cannot. How much less chance of victory has one who makes none at all! By this means I examine the situation and the outcome will be clearly apparent.

Sun Tzu

Carl von Clausewitz asserted that the most crucial of all questions facing statesmen and commanders was the determination of the kind of war a nation faces.[1] According to the Prussian theorist, two strategic imperatives comprise a war's nature: the political purpose, or what is to be achieved by the war; and the operational objective, or how the war is to be conducted.[2] Deciding the kind of war to wage—by determining its ends and ways—is the most comprehensive act of judgment and affects all subsequent calculations.[3]

Selecting the ends and ways is a complicated task compounded by the uncertainty and complexity endemic to the calculus of war. The complex problems that induce conflict are quintessentially "wicked." Furthermore, the international system in which wars occur, the societies

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[1] Carl von Clausewitz, *On War,* edited by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press), 88-89.
[2] Clausewitz, *On War,* 579.
[3] Clausewitz, *On War,* 89, 579.

that choose war, the armed forces that wage them, and war itself are complex, adaptive systems.[4] Wars, their components, and their contexts are nonlinear, systemic, iterative, human, and unpredictable.[5] Nevertheless, the challenge of complexity and intractability of wicked problems do not absolve the strategist of his responsibility to conceive of and build toward an improved future.[6] Sun Tzu, who was also alive to the complexity of war, taught the value of a rigorous analytical process.[7] From many calculations emerges an understanding of the situation and outcome. This is also the essence of Operational Design.

This chapter considers Operational Design. It begins by outlining the concept's origin and background to circumscribe the subsequent evaluation. It defines the idea and distinguishes it from planning. It explains the Operational Design method and discusses the roles of the commander and the design team. The chapter concludes by summarizing on the subject.

Operational Design, like many good ideas, defies ownership. Furthermore, it is not static. Outlined below are key elements from a growing and increasingly varied scholarship on the concept. With few

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[4] For a definition of complex adaptive systems (CAS), see M. Mitchell Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos*, (New York, NY: Simon & Schuster Paperbacks, 1992), 11-12, 145-147; on international politics as a CAS, see James N. Rosenau, "Many Damn Things Simultaneously: Complexity Theory and World Affairs," in *Complexity, Global Politics and National Security*, edited by David S. Alberts and Thomas J. Czerwinski (Washington, DC: National Defense University, 1997), 32-43 and Thomas L. Friedman, *The World is Flat: A Brief History of the 21st Century* (New York, NY: Farrar, Straus and Giroux, 2006); on societies as CAS, see Waldrop, *Complexity* and Peter Checkland, *Systems Thinking, Systems Practice* (New York, NY: John Wiley & Sons, 1993), 120-121; on armed forces as CAS see Madelfia A. Abb, "A Living Military System on the Verge of Annihilation," Unpublished Monograph (Ft. Leavenworth, KS: School of Advanced Military Studies, 10 May 2000); on war as a CAS, see John F. Schmitt, "Command and (Out of) Control: The Military Implications of Complexity Theory," in *Complexity, Global Politics and National Security*, edited by David S. Alberts and Thomas J. Czerwinski (Washington, DC: National Defense University, 1997), 99-111.
[5] Alan Beyerchen, "Clausewitz, Nonlinearity, and the Unpredictability of War," *International Security* 17, no. 3 (Winter 1992-1993), 59-90.
[6] For more on wicked problems, see Horst W.J. Rittel and Melvin M. Webber, "Dilemmas in a General Theory of Planning," *Policy Sciences* 4 (1973), 160-166.
[7] Sun Tzu, *The Illustrated Art of War*, translated by Samuel B. Griffith, New York, NY: Oxford University Press, 2005), 103.

exceptions, this chapter does not repeat the basic features of Design described previously. Rather, it concentrates on aspects of Design that are peculiar to its practice in the armed forces.

The Origin and Background of Operational Design

Operational Design is the use of Design to solve the complex problems facing military commanders at the operational level of war. It represents an application of systems theory to the operational art.[8] Before discussing the merits of Operational Design, a brief description of its origin and background is necessary.

As previously noted in the opening chapter, recognition of an operational level of war emerged in the Anglo-American military discourse in the 1980s.[9] Much had already been written to guide strategic-level decision making, and tactical problem-solving approaches seemed too linear to succeed at higher levels.[10] Practitioners in the intermediary tier—suspended between the strategic and tactical—sought rigorous, yet flexible intellectual approaches for their craft.[11] Thus, those who transferred Design methods into the security discourse in the 1990s did so purposefully to fill what they perceived to be a cognitive void in

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[8] William T. Sorrells, et al, "Systemic Operational Design: An Introduction," Unpublished Monograph (Ft. Leavenworth, KS: School of Advanced Military Studies, 26 May 2005), 15.

[9] Edward N. Luttwak, "The Operational Level of War", *International Security* 5, no. 3 (Winter 1980-1981), 61-79; Richard Simpkin, *Deep Battle: The Brainchild of Marshal Tukachevskii* (McLean, VA: Pergamon-Brassey's International Defense Publishers, 1987), x..

[10] Ketti G. Davison, "Systemic Operational Design (SOD): Gaining and Maintaining the Cognitive Initiative," Unpublished Monograph (Ft. Leavenworth, KS: School of Advanced Military Studies, 25 May 2006), 3-16. Davison argues that both the Joint Operation Planning and Execution System and Military Decision-Making Process encouraged linear and mechanistic approaches to operational planning.

[11] Effects-Based Operations is one example of a systemic approach to operational art that emerged in the 1990s. See David A. Deptula, "Effects-Based Operations: Change in the Nature of Warfare," Defense and Airpower Series (Arlington, VA: Aerospace Education Foundation, 2001) and The Joint Warfighting Center, "Operational Implications of Effects-Based Operations," Joint Doctrine Series Pamphlet 7 (US Joint Forces Command, 17 November 2004).

operational art.[12] The association between Design and the operational realm was further strengthened as these concepts and their purveyors, especially the retired Israeli Brigadier General Shimon Naveh, found a home in receptive and influential circles of the American armed forces that were already exploring the operational level of war.[13]

Naveh's emphasis on systems theory and dialectic cognition in his 1997 book *In Pursuit of Military Excellence* gave a hint of what he later called Systemic Operational Design.[14] For Naveh, systems thinking enabled the operational art in three primary ways. First, conceptualizing one's own force as a complex, hierarchical system helped operational commanders understand their role as "steer[ing] the system towards the achievement of its [strategic] aim while forestalling the dangers of segregation and mechanization" of the system's specialized components.[15] Second, a systems analysis of oneself and enemy fostered an improved understanding of each side's strengths and weaknesses—a knowledge from which opportunity emerges.[16] Third, a systems approach facilitated learning. Naveh concluded that the "dialectic thinking" that can identify and match one's strength with an opponent's

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[12] Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory* (New York, NY: Frank Cass, 2004), 4; Sorrells, et al, "Systemic Operational Design: An Introduction," 8. The Anglo-American discourse that began recognizing an operational level of war in the 1980s also included the Israeli defense and security apparatus. Israeli Defense Forces borrowed heavily from American military doctrine and their military theorists contributed extensively to the English-speaking debate. Clearly, the most relevant example for this project is that the founders of Systemic Operational Design (the predecessor of Operational Design) were veterans of the Israeli Defense Forces (IDF) and/or employees of the IDF-sponsored Operational Theory Research Institute (OTRI).

[13] Perhaps most influential was the US Army's School of Advanced Military Studies which began a relationship with Naveh in the mid-1990s and later (2005) hired him and others associated with OTRI as faculty members and student advisors. See Alexander Ryan, *Art of Design: Student Text Version 2.0* (Ft. Leavenworth, KS: School of Advanced Military Studies, 2010), 1-3.

[14] Systemic Operational Design will also be referred to as SOD.

[15] Naveh, *In Pursuit of Military Excellence*, 7.

[16] Naveh, *In Pursuit of Military Excellence*, 16.

weakness was "the crucial cognitive quality required at the operational command echelons."[17]

Naveh illustrated his ideas with an historical analysis of post-World War I Soviet doctrine, in which he contended that Soviet theoreticians, seeking an alternative to costly annihilative strategies, conducted a thorough systems analysis that revealed an adversary's characteristics and faults.[18] From this new understanding arose the 'Deep Battle' doctrine intended to induce operational shock in the enemy system without waging battles of destruction.[19] The Soviets, Naveh implied, had innovated through the use of concepts that would later become systems theory.

King Solomon observed that "there is nothing new under the sun."[20] Operational Design is no exception. Many of its elements are neither new to military theory nor original to Operational Design, as demonstrated by Naveh's retrospective analysis of early Soviet operational doctrine. Operational Design hangs on a conceptual framework of four main ideas: systems, difference recognition, learning, and social creation (i.e., collaboration).[21] Critical and systems thinking, creative leadership and team-building, and iterative processes and organizational learning have long been part of strategy formulation and planning processes.

For example, (with minimal conceptual stretching) many of these ideas are found in Clausewitz's *On War.* The interconnectedness of

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[17] Naveh, *In Pursuit of Military Excellence*, 306.
[18] Naveh, *In Pursuit of Military Excellence*, 16.
[19] Naveh, *In Pursuit of Military Excellence*, 16. For a helpful expansion on how complexity theory informs the concept of operational shock, see Paul J. Blakesley, "Operational Shock and Complexity Theory" Unpublished Monograph (Ft. Leavenworth, KS: School of Advanced Military Studies, 26 May 2005). For a critique of Naveh's analysis, see Milan N. Vego, "A Case Against Systemic Operational Design," Joint Forces Quarterly 53 (April 2009), 69-75. Vego accuses Naveh of "falsely reinterpret[ing] the early Soviet writings on operational art in terms of [General Systems Theory]" to provide SOD an operational pedigree.
[20] Ecclesiastes 1:9.
[21] Ryan, *Art of Design*, 41-58.

physical, mental and moral factors; the center of gravity; and the preoccupation with unpredictability suggest a mastery of systems thinking by the author.[22] The Prussian is unambiguous in his belief that creative leadership in the form of genius provides an extraordinary advantage.[23] Furthermore, he contends repeatedly that the *zweikampf* that is war is "never an isolated act," "never a single short blow," and "never final," which indicates an appreciation for war's dynamic, iterative nature and the opportunity it presents to a commander willing to adapt and learn.[24] Nevertheless, although many of Operational Design's concepts are not new, it repackages them in a fresh way that reminds military professionals the military mind is most critical to success on the dynamic battlefield.

Because Operational Design is not planning, it does not replace existing planning processes.[25] Rather, it lives alongside and can be employed in concert with other approaches in ways that enrich the practice of operational art. General James Mattis, as the commander of the US Joint Forces Command, warned against the "over-

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[22] Beyerchen, "Clausewitz, Nonlinearity, and the Unpredictability of War," 66-72. Another example of an operational approach in which systems theory plays and obvious role is Effects-Based Operations (EBO). Some scholars trace EBO's systems thinking back beyond the US Army's Air Corps Tactical School where, between the 20th Century's World Wars, industrial web theory informed the thinking of strategic bombing pioneers. See David S. Fadok, "John Boyd and John Warden: Air Power's Quest for Strategic Paralysis," Unpublished Thesis (Maxwell AFB, AL: School of Advanced Airpower Studies, February 1995) and Phillip S. Meilinger, "A History of Effects-Based Air Operations," *The Journal of Military History* 71, No. 1 (January 2007), 139-168. Some proponents of Systemic Operational Design distinguish its use of systems thinking about an opponent from that of EBO by claiming the former conceives of the enemy as an open system and the latter as a closed system. See, for example, Davison, "Systemic Operational Design (SOD): Gaining and Maintaining the Cognitive Initiative," 17-52 and Vego, "A Case Against Systemic Operational Design," 73-74. The present author assesses that users of EBO have mistakenly visualized opponents as closed systems in the past, but that doing so was a misapplication of the approach rather than its inherent inflexibility.

[23] Clausewitz, *On War,* 100-112.

[24] Clausewitz, *On War,* 78-79.

[25] The difference between Design and planning will be explained later in the chapter. See John F. Schmitt, "A Systemic Concept for Operational Design," Unpublished Paper, accessed December 20, 2010, http://www.au.af.mil/au/awc/awcgate/usmc/mcwl_schmitt_op_design.pdf.

proceduralization" of all planning processes and envisioned Operational Design as a way to invigorate "clear, careful thinking and creativity" within joint operation planning.[26]

While Mattis may have favored Operational Design over other constructs, the building of joint doctrine is a syncretic and evolving process.[27] Scholars have outlined how Operational Design and the Military Decision-Making Process can coexist.[28] Several have commented on the similarities between Operational Design and Effects-Based Operations.[29] Additionally, a review of US Joint Doctrine indicates that the infiltration of Operational Design ideas increasingly influences joint planning, without necessarily displacing familiar constructs.[30] Operational Design enhances existing joint planning processes.

Finally, Operational Design is not a static concept. Over time it evolved beyond Naveh's original conception.[31] Furthermore, as it

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[26] James M. Mattis, "Vision for a Joint Approach to Operational Design," Memorandum for US Joint Forces Command (6 October 2009), accessed April 29, 2011, http://www.jfcom.mil/newslink/storyarchive/2009/aod_2009.pdf.
[27] Regarding the position of Mattis, see Mattis, "Vision for a Joint Approach to Operational Design,"and James N. Mattis, "USJFCOM Commander's Guidance for Effects-based Operations," *Parameters* (Autumn 2008), 18-25; on the nature of doctrine integration, see Barry R. Posen, *The Sources of Military Doctrine: France, Britain, and Germany Between the World Wars* (Ithaca, NY: Cornell University Press, 1984), 41-54.
[28] For example, see Davison, "Systemic Operational Design (SOD): Gaining and Maintaining the Cognitive Initiative."
[29] For example, see Patrick E. McGlade, "Effects-Based Operations Versus Systemic Operational Design: Is There A Difference?" Graduate Research Project (Wright-Patterson AFB, OH: Air Force Institute of Technology, June 2006); in Davison, "Systemic Operational Design (SOD): Gaining and Maintaining the Cognitive Initiative," the author's comparison of SOD and Effects-Based Operations (EBO) reveals both significant similarity and real difference between the two constructs; in Vego, "A Case Against Systemic Operational Design," the author also highlights similarities and differences between SOD and EBO; for an argument on the enduring utility of EBO, see Tomislav Z. Ruby, "Effects-based Operations: More Important Than Ever," *Parameters* (Autumn 2008), 26-35.
[30] For example, both operational design and effects are represented in Joint Publication 5-0, Joint Operation Planning (26 December 2006) and Joint Publication 3-0, Joint Operations, Change 2 (22 March 2010); on page xiii, JP 5-0 states, "Joint operation planning blends two complementary processes. The first is the joint operation planning process; the second process is operational design."
[31] Adam Elkus and Crispin Burke, "Operational Design: Promise and Problems," smallwarsjournal.com, accessed December 10, 2010, http://smallwarsjournal.com/blog/journal/docs-temp/362-elkus.pdf.

permeates operational discourse and doctrine, scholars interpret and apply its ideas in varying ways. They also pollinate Operational Design with concepts from other literature on the operational art. While conceptual mutations are inevitable, they somewhat complicate this project's endeavor to consider Operational Design's relationship with intelligence. The following section describes this author's understanding of the practice of Design.

Defining Operational Design

As previously asserted, Operational Design is the use of Design to solve the complex problems facing military commanders at the operational-level. The Joint Warfighting Center, borrowing directly from US Army doctrine, defines it as "a methodology for applying critical and creative thinking to understand, visualize, and describe complex, ill-structured problems and develop approaches to solve them."[32] Because complex problems (and strategic guidance about them) are often obtuse and dynamic, Operational Design concentrates on problem identification. As John Schmitt explained in "A Systemic Concept for Operational Design," "The underlying premise of [Operational Design] is that if we understand a problem well enough, a solution to the problem becomes self-evident."[33]

Operational Design's fixation with ascertaining the right problem distinguishes it from planning. For Schmitt, designing is problem-setting and planning is problem-solving.[34] The former involves "locating, identifying and formulating the problem, its underlying causes, structure and operative dynamics—in such a way that an approach to solving the

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[32] The Joint Warfighting Center, "Design in Military Operations: A Primer for Joint Warfighters," Joint Doctrine Series Pamphlet 10 (US Joint Forces Command, 20 September 2010), 4; Field Manual 5-0, The Operations Process (Headquarters Department of the Army, March 2010), 3-1.
[33] Schmitt, "A Systemic Concept for Operational Design," 3, 5-7.
[34] Schmitt, "A Systemic Concept for Operational Design," 3; also see Sorrells, et al, "Systemic Operational Design: An Introduction," 15.

problem emerges."[35] Conversely, planning is "the process of devising, generally through the application of established procedures, a series of actions to be taken."[36]

Joint doctrine sees the distinction between designing and planning similarly: "Operational design is the conception and construction of the framework that underpins a joint operation plan and its subsequent execution."[37] Army doctrine, in contrast, considers designing part of planning. However, its subtle differentiation is in consonance with joint doctrine. From Field Manual 5-0: "Planning consists of two separate, but closely related components: a conceptual component and a detailed component. The conceptual component is represented by the cognitive application of design. The detailed component translates broad concepts into a complete and practical plan."[38] Operational Design is not planning; rather, they are two parts of the same whole.[39] Operational Design precedes and occurs coincident with planning.[40]

The Practice of Operational Design

So, how is Operational Design performed?[41] US Army doctrine identifies three broad and concurrent steps: framing the environment, framing the problem, and considering operational approaches.[42] First,

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[35] Schmitt, "A Systemic Concept for Operational Design," 6.
[36] Schmitt, "A Systemic Concept for Operational Design," 6.
[37] JP 5-0, IV-2.
[38] FM 5-0, 3-1.
[39] JWFC, "Design in Military Operations," Pamphlet 10, 32.
[40] An illustration of this distinction that may be familiar to airmen is the difference between the functions of the strategy and plans divisions in an air and space operations center. The former designs the way airpower will be employed, while the latter's detailed planning—which produces the joint integrated prioritized targeting list and master air attack plan—puts flesh on the construct's skeleton. See Air Force Tactics, Techniques and Procedures 3.3.AOC, Operational Employment – Air and Space Operations Center (1 November 2007).
[41] Readers will recall from Chapter Five of this paper that Bryan Lawson, author of *How Designers Think*, identified five Design activities: formulating, moving, representing, evaluating, and reflecting. See Bryan Lawson, *How Designers Think: The Design Process Demystified*, 4th Edition (Burlington, MA: Architectural Press, 2006), 291.
[42] FM 5-0, 3-7; John Schmitt offers a more involved seven-step design process in Schmitt, "A Systemic Concept for Operational Design," 20-23. The more simple US Army doctrinal approach suffices for this project.

framing the operational environment involves "making sense of a complex reality."[43] A systems analysis, like that conducted to prepare the Joint Intelligence Preparation of the Operational Environment (JIPOE), orders, groups, and characterizes the relevant actors and their relationships to foster an understanding of the situation.[44] The JIPOE will include a critical-factor analysis that identifies center(s) of gravity; critical capabilities, requirements, and vulnerabilities; and decisive points in the enemy system.[45] Environmental framing also entails the examination and synthesis of received guidance, including termination criteria, desired end state and conditions, objectives, and effects.[46] However, because there is no definitive formulation of an ill-structured problem, guidance can be nebulous or imprecise and requires careful consideration.[47]

Problem framing involves a refinement of the environmental frame to isolate the root causes of the problem.[48] Understanding of an operational problem requires an understanding of the context that produced it. Reciprocally, appreciation of an ill-structured problem illuminates the systems in which it resides. However, Operational Design appreciates the unknowable nature of both ill-structured problems and the complex, adaptive systems that comprise the operational environment. As Schmitt surmised, "Understanding a wicked problem is not a matter of capturing reality sufficiently correctly, but of constructing an interpretation that is sufficiently useful in dealing with reality."[49]

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[43] FM 5-0, 3-8.
[44] See Joint Publication 2-01.3, Joint Intelligence Preparation of the Operational Environment (16 June 2009).
[45] JP 5-0, IV-8-15; JP 2-01.3, II-65-67; Jeffrey M. Reilly, "Operational Design: Shaping Decision Analysis through Cognitive Vision," 2nd Edition (Maxwell AFB, AL: Department of Joint Warfare Studies, November 2009), 25-32.
[46] JP 5-0, IV-4-8; FM 5-0, 3-9.
[47] Rittel and Webber, "Dilemmas in a General Theory of Planning," 161.
[48] FM 5-0, 3-10.
[49] Schmitt, "A Systemic Concept for Operational Design," 10.

In framing the problem, the design team explores in finer detail the relationship between the desired outcome and the environmental and enemy systems. An appreciation of system tendencies as they relate to the desired outcomes is crucial. As this knowledge increases, designers identify the general aspects of the system that hold the potential to transform "existing conditions toward desired conditions."[50] The outcome of this step is "a narrative that explains the problem that must be addressed to achieve strategic aims."[51]

In the third step, designers develop the general operational approach. According to FM 5-0, this is "a broad conceptualization of the general actions that will produce the conditions that define the desired end state."[52] Designers must carefully consider the interconnectivity of the system upon which they propose to act and be mindful of the potentially unpredictable consequences of proposed action. As they think about potential solutions, they deepen their understanding of the problem and environment.[53] Eventually, the operational approach describes a unique combination and synchronization of tasks and explains the mechanism that links those acts to the desired outcome.[54]

The US Joint Warfighting Center (JWFC) adds two useful Operational Design steps to those described above. [55] The first is to "document the result."[56] Sometimes diagrams can concisely depict the design concept—the commander's visualization of the environment-problem-solution relationship. Army doctrine implores supplementing graphics with a narrative that explains the concept.[57] Keith Dickson, in "Operational Design: A Methodology for Planners," suggests designers

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[50] FM 5-0, 3-10-11.
[51] "Commander's Appreciation and Campaign Design, Version 1.0," TRADOC Pamphlet 525-5-500 (US Army, 28 January 2008), 24.
[52] FM 5-0, 3-11.
[53] Schmitt, "A Systemic Concept for Operational Design," 10.
[54] FM 5-0, 3-11.
[55] JWFC, "Design in Military Operations," Pamphlet 10, 4.
[56] JWFC, "Design in Military Operations," Pamphlet 10, 15-16.
[57] FM 5-0, 3-12.

portray the approach using logical lines of operation that graphically link the end state, objectives, conditions, effects, COG(s), decisive points, operational phases, and available means.[58] Regardless of the form it takes, the product should convey clearly the logic that will guide course of action development during the subsequent detailed planning stage.[59]

The final step of Operational Design is to "reframe as required."[60] According to the JWFC's pamphlet on Operational Design, "Reframing is a process of revisiting earlier design hypotheses, conclusions, and decisions that underpin the current operational approach."[61] Incomplete understanding of complex adaptive systems and their wicked problems is probable and may only be appreciated through interaction over time. Interaction transforms systems in unexpected ways. During a campaign the strategic aims may also change.[62] Continual assessment and reflection fosters a deeper understanding of the environment, the problem, and the approach.[63] As often as necessary, the Design process should restart to optimize effective action. The ability to reframe is evidence of organizational learning.

Leading Operational Design

Operational Design is a commander-driven process.[64] General Mattis, in his "Vision for a Joint Approach to Operational Design," felt the need to emphasize this point when he wrote, "To be absolutely clear, the commander actively leads the design effort."[65] As Schmitt argues, this does not mean the commander generates all of the ideas; rather, he is a direct participant who contributes to and learns from the process.[66]

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[58] Keith D. Dickson, "Operational Design: A Methodology for Planners," (Norfolk, VA: Joint and Combined Warfighting School, Spring 2007); also see FM 5-0, 3-11.
[59] FM 5-0, 3-11.
[60] JWFC, "Design in Military Operations," Pamphlet 10, 4.
[61] JWFC, "Design in Military Operations," Pamphlet 10, 16.
[62] "Commander's Appreciation and Campaign Design, Version 1.0," 17.
[63] Ryan, *Art of Design*, 109, 116.
[64] This is more axiomatic of command than it is Design.
[65] Mattis, "USJFCOM Commander's Guidance for Effects-based Operations," 6.
[66] Schmitt, "A Systemic Concept for Operational Design," 22-23.

Ultimately, however, commanders own the operational concept they choose to implement; and it is their intuition that most directly contributes to and benefits from Operational Design.[67] The process is intended to assist them in understanding, visualizing and describing complex problems and developing solutions.[68] Commanders are well situated to enhance the quality of their design process. Their perspective is broader and more comprehensive than the staff's by virtue of experience and the extensive interaction with superiors, colleagues, subordinates, agency leaders, and multinational partners peculiar to their position.[69]

Commanders' wide-ranging relations also position them to exercise the collaborative leadership necessary for organizational learning. [70] Discourse is a critical and enabling feature of Design with several benefits.[71] First, it is how commanders develop a shared understanding of the situation. As commanders move around the battlefield, they collect and impart information about the environment, the problem, and the operational approach.[72] Second, discourse fosters a shared commitment to possible solutions among stake-holders.[73] Third,

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[67] Mattis, "USJFCOM Commander's Guidance for Effects-based Operations," 6; Schmitt, "A Systemic Concept for Operational Design," 22.

[68] FM 5-0, v.

[69] Mattis, "USJFCOM Commander's Guidance for Effects-based Operations," 6.

[70] Jack D. Kem, *Design: Tools of the Trade* (Ft. Leavenworth, KS: US Army Combined Arms Center, May 2009), 27-30.

[71] Joseph DiPasquale argues that a single discourse is comprised of multiple simultaneous discourses that each serve unique functions. For example, there may be a meta-discourse that builds consensus, while another discourse structures the process, and another discourse builds the design narrative. See Joseph A. DiPasquale, "Discourse in Systemic Operational Design," Unpublished Monograph (Ft. Leavenworth, KS: School of Advanced Military Studies, 22 May 2007).

[72] Battlefield circulation is an important part of the US Army's battle command concept. For more on both ideas, see Field Manual 3-0, Operations (Headquarters Department of the Army, February 2008). For a discussion on the relationship between design and battle command, see Kem, *Design: Tools of the Trade* and David P. McHenry, "Battle Command: An Approach to Wickedness," Unpublished Monograph (Ft. Leavenworth, KS: School of Advanced Military Studies, 21 May 2009).

[73] Schmitt, "A Systemic Concept for Operational Design," 19; Jeff Conklin, *Dialogue Mapping: Building Shared Understanding of Wicked Problems* (Chichester, England: John Wiley & Sons, Ltd., 2006), 29.

discourse fosters innovation. It is egalitarian in its acceptance and distribution of ideas, which is especially helpful in the rigid hierarchy of a military organization. As Kem concludes, "Design is a <u>team sport</u>. It helps to 'harvest the corporate intellect' of the commander, staff, superiors, and subordinates."[74] Finally, as the arena where narratives do battle, discourse hones concepts to describe reality more accurately and improve the commander's conceptualization of the situation.[75] Good commanders encourage the ongoing dialogue that enhances collaboration and learning.

Finally, the most regular contributors to the discourse will be the design team. Experts differ on the composition of the team; however, its central purpose is clear—to enhance the understanding of the commander. As such, commanders should take an active role in selecting their intellectual confidants. Teams are problem-centric entities that change over time as circumstances dictate.[76] While team size varies depending on the problem's nature and the resources available, teams are typically small groups.[77] Research suggests a core team of five-to-six members is optimal.[78] Selection is based on expertise relative to the problem.[79] Critical and creative thinking skills are also precious attributes.[80] Ideal team composition should reflect a diversity of perspective that promotes the competitive intellectual environment necessary for dialectic discourse.[81] Army doctrine recommends that the team include key individuals from the planning staff who can ensure

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[74] Kem, *Design: Tools of the Trade*, 63. Emphasis and internal quotation marks in original.
[75] Ryan, *Art of Design*, 77.
[76] FM 5-0, 3-6.
[77] Schmitt, "A Systemic Concept for Operational Design," 22; Ryan, *Art of Design*, 20.
[78] Ryan, *Art of Design*, 20; Michael L. Hammerstrom, "Size Matters: How Big Should a Military Design Team Be?" Unpublished Monograph (Ft. Leavenworth, KS: School of Advanced Military Studies, 2010).
[79] FM 5-0, 3-6.
[80] Stephen Wright, "A Conversation on the Composition of Design Teams," interview with the author (8 April 2011).
[81] Schmitt, "A Systemic Concept for Operational Design," 22.

conceptual continuity when the design moves into detailed planning phases.[82] Finally, according to Schmitt, to the extent possible design teams should consist of "key stake-holders with a compelling interest in the outcome of the situation."[83] It is such people who must live with the result of the design and who will almost certainly participate in the recurring discourse.[84] In the end, regardless of composition, the design team aspires to assist the commander's holistic and simultaneous appreciation of the operational environment, problem, and potential solutions. In doing so, they also develop their own awareness of the nature of the whole.

Conclusions

War's inherent problems are wicked, being a function of the interactions of complex systems. Determining the kind of war that looms or rages is the most essential of all judgments made by the statesman and commander. Operational Design is a tool that assists such consequential assessment at the operational level of war.

Operational Design is the use of Design to solve the complex problems facing military commanders. It occurs in addition to planning and involves systems thinking, collaborative leadership, iterative decisionmaking and organizational learning to enrich the operational art. Operational Design places special emphasis on framing a problem to address its root causes. It entails simultaneous and reinforcing endeavors to understand the interconnected operational environment in which the problem exists and potential action will occur; the problem itself, in all its complexity; and the most effective approach to solve the problem. This approach emerges from a growing appreciation of the situation.

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[82] FM 5-0, 3-6.
[83] Schmitt, "A Systemic Concept for Operational Design," 22.
[84] Schmitt, "A Systemic Concept for Operational Design," 22.

Operational Design is a commander-led process that relies on an inclusive and critical discourse to analyze ideas, synthesize concepts, facilitate learning, and foster a shared understanding of the environment and problem that drives the organization toward an effective solution. Design teams represent an extension of the commander's intellect, whose purpose is not to think on behalf of the commander, but to assist the commander's critical and creative conceptualization of the problem at hand. In the next chapter we consider how Lieutenant General Sir Harold Briggs and General Sir Gerald Templer may have implicitly used the tenets of Operational Design as they reasoned their way toward an operational approach that would bring victory during the Malayan Emergency.

Chapter 7

Operational Design in the Malayan Emergency

The policy of HM Government in the United Kingdom is that Malaya should in due course become a fully self-governing nation. HM Government confidently hope that that nation will be within the British Commonwealth. ... To achieve a United Malayan nation there must be a common form of citizenship for all who regard the Federation or any part of it as their real home and the object of their loyalty. It will be your duty to guide the peoples of Malaya toward the attainment of these objectives and to promote such political progress of the country as will, without prejudicing the campaign against terrorists, further our democratic aims in Malaya.

Directive to General Templer from Mr. Lyttelton, 7 February 1952

In December 1951, after conducting a fact-finding tour of Malaya, Mr. Oliver Lyttelton, the British Secretary of State for the Colonies, described the Malayan Emergency as follows:

> The situation was far worse than I had imagined: it was appalling ... I have never seen such a tangle as that presented by the Government of Malaya.... There was divided and often opposed control at the top.... The two authorities [civil and military] were apparently co-equal, neither could overrule the other outside his own sphere. But what was each sphere? The frontiers between their responsibilities had not been clearly defined, indeed they were indefinable, because no line could be drawn to show where politics, civil administration, police action, administration of justice and the like end, and where para-military or military operations begin. The civil administration moved at a leisurely pace.... The police itself was divided by a great schism between the Commissioner of Police and the Head of the Special Branch. Intelligence was scanty and uncoordinated between the military and the civil authorities.... Morale amongst planters, tin miners, and amongst Chinese loyalists and Malays, was at its lowest.

The grip of terrorists was tightening, and the feelings of the loyalists could be summed up in one word, despair.[1]

In the vernacular of Operational Design, Malaya posed a wicked problem.[2] Just as the Malayan Emergency provides an intelligence success story, it also offers an example of successful Operational Design.

This chapter reconsiders the Malayan Emergency through the lens of Operational Design. It begins by evaluating the development of Lieutenant General Sir Harold Briggs's understanding that led to his crucial reframing of the situation from a terrorism threat to a governance challenge. Next, it highlights Briggs's collaborative leadership as he assembled the eventually successful operational approach. It then examines General Sir Gerald Templer's opportunity to reframe the problem; his leadership through discourse; and, his selection of a core design team that included his Director of Intelligence. The chapter concludes that the Malayan Emergency demonstrated many key elements of Operational Design, including its close relationship with intelligence.

Before proceeding it is necessary to comment briefly on this chapter's method. Imposing a contemporary construct, such as Operational Design, on past events risks committing a *post hoc ergo propter hoc* logical fallacy. While this analytical danger neither negates the utility of a retrospective evaluation nor invalidates its inferences, it does make the following argument suggestive rather than authoritative. Nevertheless, there is value in considering whether and how the events of the Malayan Emergency resemble the Operational Design process for this project's forthcoming synthesis of insights from operational intelligence and Operational Design.

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[1] Oliver Lyttelton, *The Memoirs of Lord Chandos* (London: Bodley Head, 1962), 366-367; as quoted in John Cloake, *Templer: Tiger of Malaya* (London: Harrap Limited, 1985), 200, and in John Coates, *Suppressing Insurgency: An Analysis of the Malayan Emergency, 1948-1954* (Boulder, CO: Westview Press, 1992), 110-111.
[2] Horst W.J. Rittel and Melvin M. Webber, "Dilemmas in a General Theory of Planning," *Policy Sciences* 4 (1973), 160-166.

Briggs's Reframing of the Environment and the Problem

While General Templer received credit for the vigorous leadership that broke the insurgency, it was Lieutenant General Briggs's concept that provided the blueprint for victory. Briggs's approach proved successful because it addressed the right problem. His plan maintained elements of the existing counterterrorism strategy that sought to defeat the Malayan Communist Party (MCP).[3] However, he understood that this effort was insufficient; terrorism was only a symptom of the Emergency's root cause.

Briggs's analysis reframed the situation. As he better understood the operational environment, he recognized the problem as being the political disenfranchisement of the Chinese squatters. A prominent environmental factor was that British policy sought the eventual peaceful decolonization of a stable Malaya within its economic sphere of influence.[4] Achieving this end was impossible as long as the insurgency raged on. It was also improbable without reconciling the demographic fissures within Malayan society. Furthermore, it would require effective self-administration. From his appreciation of both the environment and problem emerged an operational approach. Briggs concluded that the people were the center of gravity of both the insurgency and the Malayan government, and he refocused the government's energy on an indirect counter to the insurgency—isolating the MCP through good governance.[5]

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[3] Huw Bennett, "'A very salutary effect': The Counter-Terror Strategy in the Early Malayan Emergency, June 1948 to December 1949," *The Journal of Strategic Studies* 32, no. 3 (June 2009), 417.

[4] A.J. Stockwell, "British Imperial Policy and Decolonization in Malaya, 1942-52," *The Journal of Imperial and Commonwealth History* 13, no. 1 (1984), 68-87, and A.J. Stockwell, "Insurgency and Decolonisation during the Malayan Emergency," *The Journal of Commonwealth & Comparative Politics* 25, no. 1 (1987), 71-81.

[5] CAB 21/1681, MAL C(50)23, Appendix, 'Federation plan for the elimination of the communist organization and armed forces in Malaya' (the Briggs Plan): report by COS for Cabinet Malaya Committee, 24 May 1950, in A.J. Stockwell, *British Documents on the End of Empire: Malaya. Part II, The Communist Insurrection, 1948-1953* (London: HMSO Books, 1995), 216-221. Also see Anthony Short, "Communism and the Emergency," in *Malaysia: A Survey*, edited by Wang Gungwu (New York, NY: Frederick A. Praeger, Inc., Publishers, 1964), 155; Richard L. Clutterbuck, *The Long Long War:*

The use of force would purchase the space and time required for his plan to work.

Just how Briggs's winning plan came into being remains somewhat unclear.[6] Nevertheless, what is known about his development of understanding and an operational approach is instructive. He sought insight from three primary sources. First, while the intelligence system remained imperfect, after two years of counterinsurgency experience in Malaya, its appreciation of the environment appears to have informed Briggs's assessment.[7] Second, in a sort of battlefield circulation, Briggs met with a multitude of civilian, military, and business leaders throughout the country upon arriving in Malaya, each of whom added to his understanding of the challenge.[8]

Third, Briggs conducted his own analysis, which was informed by extensive experience and impeccable judgment.[9] He had served in the British army since 1914, spending most of his time in Asia.[10] Thus, Briggs was familiar with, at least in part, the cultures and mindsets of the Asians with whom he worked.[11] His service in Burma also brought

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Counterinsurgency in Malaya and Vietnam (New York, NY: Frederick A. Praeger, Publishers, 1966), 57; Coates, *Suppressing Insurgency,* 82.

[6] The author attributes the lack of scholarship on the advent of the Briggs Plan to two main factors. First, much of the early literature on Malaya emphasizes the role of leadership in the Emergency's success and focuses on General Templer. Briggs's positive contributions were largely obscured by the grave indicators that punctuated his command's conclusion, including highwater marks on most security metrics and the assassination of High Commissioner Sir Henry Gurney. (See Chapter Four of this work for more.) Second, the initial relative lack of interest in Briggs was compounded by his untimely death as well as the passing of other key principals. These premature losses deprived historians of the opportunity to record their narratives as fully as was done with survivors such as Templer. Briggs died in 1952, just months after retiring from Malaya, leaving no papers. Gurney, of course, was assassinated in October 1951. As well, High Commissioner Sir Edward Gent, Gurney's predecessor, was killed in an aircraft crash in July 1948 during his return to England from Malaya.

[7] See the argument made in Chapter Four of this project.

[8] Coates, *Suppressing Insurgency,* 81-82.

[9] Anthony Short, "Communism and the Emergency," 155.

[10] Clutterbuck, *The Long Long War*, 57; Coates, *Suppressing Insurgency,* 81.

[11] Coates, *Suppressing Insurgency,* 81.

with it a familiarity with both jungle warfare and civil administration during an era of decolonization and rising nationalism.[12]

As well, Briggs had a reputation for being imaginative and incisive.[13] Field Marshal William Slim, his commander in Burma, wrote admiringly of him, "I know of few commanders who made as many immediate and critical decisions on every step of the ladder of promotion, and I know of none who made so few mistakes."[14] Ultimately, Briggs himself proved to be an exceptional analyst who was more than capable of appreciating the complexities of the communist insurgency in Malaya.

Briggs's Development of an Operational Approach

The operational approach that became Briggs's eponymous plan emerged from his conceptualization of the environment and problem. However, the solution, like the analysis, was not his alone; rather, it was the product of a collaborative process. Counterinsurgency was familiar to the British colonial experience, as were population control measures used to separate guerrillas from their support. Briggs and his colleagues would have known about, for example, Lord Horatio Kitchener's resettlement of civilians between 1900 and 1902 during the Second Boer War.[15]

Furthermore, it is likely High Commissioner Sir Henry Gurney, with two years experience in Malaya, had concrete ideas on how to wage the counterinsurgency. Gurney had already begun working to resettle Chinese squatters before Briggs arrived.[16] One author attributed to Gurney the perceptive notion that squatter resettlement would simultaneously integrate Malayan society and disrupt MCP support.[17] Additionally, it was one of Gurney's key assistants and later a close

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[12] Coates, *Suppressing Insurgency,* 81.
[13] Clutterbuck, *The Long Long War*, 57.
[14] William Slim, *Defeat Into Victory* (London: Cassell, 1972), 145.
[15] Thomas Parkenham, *The Boer War* (New York, NY: Random House, 1979), 522.
[16] Noel Barber, *The War of the Running Dogs: The Malayan Emergency: 1948-1960* (New York, NY: Weybright and Talley, 1971), 61-71, 93-100.
[17] Barber, *The War of the Running Dogs*, 61-71, 93-100.

advisor to Briggs, the Malayan Civil Servant Robert Thompson, who drafted the Briggs Plan after numerous meetings with the Director of Operations and his military staff officers.[18] To single out Gurney or Thompson as the source of the Emergency's successful counterinsurgency concepts is as misguided as it is to credit Briggs alone. The operational approach resulted from a process of developing shared understanding of the environment, the problem, and the potential solutions.

Nevertheless, the advent of the Briggs Plan demonstrated the leadership and incisiveness of the man who shared his name with it.[19] Briggs led the design process, supplementing others' assessments with his own analysis; engaging numerous contributors to the discourse; incorporating various inputs into the concept; and all along relying on his own experience and judgment. He assumed ownership of his design and was responsible for articulating it to and gaining support for it from the British Defence Coordination Committee, Far East, which he did in May 1950, and with the Cabinet Malaya Committee, which he did in July.[20] He was also accountable for carrying it out. In the end, Briggs

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[18] Barber, *The War of the Running Dogs*, 96-97.

[19] The Briggs Plan seems to be an example of the *Matthew Effect* and its corollary *Stigler's Law of Eponymy* which state that a combination of sociological factors result in the regular misattribution of credit for great accomplishments: "No scientific discovery is named after its original discoverer." While the concepts inherent in the Briggs Plan may not have belonged to Briggs alone, he did as much as anyone to turn the concepts into reality. Briggs presented the plan as the "Federation plan for the elimination of the communist organization and armed forces in Malaya." However, his advocacy—not to mention the plan's unwieldy official title—probably resulted in the association of Briggs with the plan. The shortened title naturally assumed his name. According to John Coates, the *Straits Times* first called it the "Briggs War Plan" on 12 June 1950, and later the "Briggs Plan" on 6 August. See note 22 in Coates, *Suppressing Insurgency,* 102. Also see comment in A.J. Stockwell, *British Documents on the End of Empire: Malaya. Part II, The Communist Insurrection, 1948-1953*, 216. On the *Matthew Effect*, see Robert K. Merton, "The Matthew Effect in Science," *Science,* New Series 159, No. 3810 (5 Jan 1968), 56-63; on *Stigler's Law* see T.F. Gieryn, *Science and Social Structure: A Festschrift for Robert K. Merton* (New York, NY: NY Academy of Sciences), 147-157.

[20] A.J. Stockwell, *British Documents on the End of Empire: Malaya. Part II, The Communist Insurrection, 1948-1953*, 216; Coates, *Suppressing Insurgency,* 82.

was the design's chief architect, and the Briggs Plan became a worthy legacy.

Templer and Operational Design

Three aspects of Templer's tenure round out the Malayan Emergency's illustration of Operational Design. One elucidates reframing; another emphasizes discourse; and the third provides an example of design-team composition. A change of command is a natural opportunity to reassess a situation and reframe if required. John Cloake argued, in his biography *Templer: Tiger of Malaya,* that the general's first and primary concern upon taking command was to "get the priorities right."[21] Templer received Lyttelton's strategic guidance shortly before arriving in Malaya in February 1952.[22] Once there, Templer began an exhaustive review to develop his own awareness of the situation. In the end, his analysis of the environment, of the problem, and of the optimal operational approach aligned closely with that of his predecessor. Templer found no need to reframe the situation and endorsed the Briggs Plan as his operational approach for solving the Emergency. [23]

Templer developed his understanding of the Malayan Emergency in part through discourse.[24] Within a week of his arrival, he hosted overnight at his residence all of the British Advisors in the country and their wives, talking with them "into the small hours" of the night.[25] He constantly toured Malaya and engaged his superiors, staff, subordinate commanders and forces, leaders of the Malayan and Chinese

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[21] Cloake, *Templer,* 227.
[22] Oliver Lyttelton, "Directive Addressed to General Templer by Secretary of State for the Colonies, published 7 February 1952," in Coates, *Suppressing Insurgency,* 205-206.
[23] Coates, *Suppressing Insurgency,* 118.
[24] Like Briggs, Templer probably relied on a combination of intelligence, intuition, and discourse to develop his understanding. The improving quality of analysis was previously discussed in Chapter Four. Additionally, Templer's qualifications and intellect were exceptional and do not require a retelling here. (See Cloake's *Templer* for a thorough account of the man.) His use of discourse, however, deserves emphasis in this chapter.
[25] Cloake, *Templer,* 213.

communities, and the people of Malaya in an on-going conversation.[26] One police commandant recalled, "Then [Templer] went on to say that he would ask advice from his staff and all those concerned before making plans. That was the time to offer advice, to put forward plans—however different or controversial, and to criticise. All would be listened to and taken into account."[27] Templer cast his net wide for ideas and welcomed the participation of even mid-level officials in this discourse.

The composition of what can be described as Templer's core design team was also instrumental in his success. As the dual-hatted High Commissioner and Director of Operations, Templer moved in many circles and participated in multiple councils and committees. However, he relied on the Director of Operations Committee that met three times weekly to help in his oversight of operations.[28] This committee assisted his critical thinking and development of ideas. Templer presided over the committee and populated it with key members of his organization who were also responsible for implementing the concepts he approved. They included his Deputy Director of Operations, Chief Secretary, Secretary for Defence, Director of Intelligence, Ground Operations Commander, Air Operations Commander, and Chief of Police.[29] Guy Madoc, who was appointed Director of Intelligence in 1954, later highlighted the inclusion of the intelligence director on the operations committee as one of Templer's major innovations. He claimed, "I heard many times this was the first instance [in the history of the British Empire] of the absolute

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[26] Coates, *Suppressing Insurgency,* 116.

[27] Cloake, *Templer,* 213.

[28] CO 1022/60, no 3, [Reorganisation of government]: inward telegram no 268 from Sir G Templer to Mr Lyttelton on new measures, 28 Feb 1952, in A.J. Stockwell, *British Documents on the End of Empire: Malaya. Part II, The Communist Insurrection, 1948-1953* (London: HMSO Books, 1995), 375.

[29] CO 1022/60, no 3, in Stockwell, *British Documents on the End of Empire: Malaya. Part II,* 375.

importance of Intelligence being given full recognition. I know that it was true of Malaya."[30]

Conclusions

This inferential analysis of the Malayan Emergency using the contemporary rubric of Operational Design found that elements of Operational Design are retrospectively evident. Collaborative leadership and discourse played an important assisting role in the development of understanding for both Lieutenant General Briggs and General Templer. Briggs's appreciation of the complex operational environment and the wicked problem represented by the Emergency caused him to reframe the challenge as one of good governance. He concluded that the existing counterterrorism strategy was insufficient because it did not address the root problem of Chinese disenfranchisement. From his enhanced understanding of the environment and the problem emerged an operational approach that became the successful Briggs Plan.

Templer developed his own appreciation of the situation upon his arrival in Malaya and determined that a reframing was unnecessary. His understanding of the environment, the problem, and the optimal operational approach was consistent with that of his predecessor. Despite the fact that reframing was not required, however, Templer's extensive consultations and intense mental activity leading to this conclusion were quite valuable because they gave him a deep conviction in the soundness of the overall approach and awareness of the variations with which it would have to be implemented. He set about executing the Briggs Plan with vigor and innovation. He also surrounded himself with a core design team comprised of key stake-holders within his command, including his Director of Intelligence. The next chapter will explore more closely the relationship between intelligence and design.

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[30] Short, *The Communist Insurrection in Malaya 1948-1960*, 360; also quoted in Nagl, *Learning to Eat Soup with a Knife*, 92; for more on Guy Madoc see Cloake, *Templer, 231-235*.

Chapter 8

A Synthesis of Operational Intelligence and Operational Design

There are some things that you know to be true, and others that you know to be false; yet despite this extensive knowledge that you have, there remain many things whose truth or falsity is not known to you. We say that you are uncertain about them. You are uncertain to varying degrees, about everything in the future; much of the past is hidden from you; and there is a lot of the present about which you do not have full information. Uncertainty is everywhere and you cannot escape from it.

<div align="right">

Dennis Lindley

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What is called 'foreknowledge' cannot be elicited from spirits, nor from gods, nor by analogy with past events, nor from calculations. It must be obtained from men who know the enemy situation.

<div align="right">

Sun Tzu

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Uncertainty is everywhere; it is inescapable, especially in war.[1] Efforts to mitigate it represent the conceptual bridge connecting operational intelligence and Operational Design. In some respects, the latter exists because of the former's failure to vanquish uncertainty. Uncertainty drove commanders to build sophisticated intelligence organizations to dispel the fog of war; it also pushed them toward elaborate cognitive processes to manage that fog. Both intelligence and Design are extensions of the operational-level commander's mind. Intelligence aims to ask and answer the right questions; Design seeks to identify and solve the right problems. Intelligence collects and analyzes information to build understanding of a complex situation; Design translates a tenuous understanding into an approach for achieving operational aims and strategic ends. Intelligence strives to make sense

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[1] Dennis V. Lindley, *Understanding Uncertainty* (Hoboken, NJ: Wiley-Interscience, 2006), xi.

of past and current circumstances to inform future action; Design endeavors to mold the future based on what is learned from the past and known about the present. Without uncertainty, there would be no need for intelligence or Design; because of uncertainty, intelligence and Design are two sides of the same coin.

The Chinese theorist Sun Tzu asserted that, to the extent it is possible, certainty is "obtained from men who know the enemy situation."[2] While this maxim referred to the ability of effective spies to know the enemy's immediate intent, it also describes the ability of effective designers to shape a preferred future. This chapter synthesizes insights from the previous chapters to answer the research question: How should the practice of operational intelligence be influenced by the concepts of Operational Design?

From the synthesis of operational intelligence and Operational Design emerge five significant insights for the practice of intelligence at the operational level of war. The chapter begins by evaluating the tension within operational intelligence between the strategic and tactical perspectives of war. Second, it assesses the crucial function of intelligence in organizational learning during wartime. It then appraises the priceless benefit of collaboration in the practice of operational intelligence. Next, it considers briefly what most designers expect from intelligence—the Joint Intelligence Preparation of the Operational Environment. The last insight involves the central role of the intelligence advisor at the operational level of war. The chapter concludes that a closer integration of the complementary activities of operational intelligence and Operational Design, under the command of a flexible-minded and collaborative leader, is a promising construct for the rich and successful practice of operational art.

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[2] Sun Tzu, *The Illustrated Art of War*, translated by Samuel B. Griffith (New York, NY: Oxford University Press, 2005), 232.

Balancing the Strategic and Tactical of Operational Intelligence

The most important lesson offered by Operational Design to the practice of operational intelligence is a reminder of the primacy of strategic over tactical matters. A premise of Operational Design is that to be effective a solution must address the correct problem. Operational Design concentrates on understanding strategic and operational problems and evaluating the operational mechanism used to achieve desired strategic outcomes and operational objectives. This unceasing effort lifts the commander's gaze away from tactical concerns and toward issues that closely affect strategy. Strategy and tactics are both essential. Strategy without tactics is toothless; and, tactics without strategy lacks purpose.[3] Nevertheless, Operational Design's continuous quest to discern and tackle the correct problem reminds us that the scale favors strategy.

Operational Design seeks continually to identify and address the root causes of a complex problem. An operational approach that quells a problem's symptoms without contributing to the solution of its causes risks never achieving the strategic objective, regardless of how exceptional its tactical employment.[4] Allan R. Millett and Williamson Murray, editors of and contributors to the landmark multi-volume *Military Effectiveness*, made this argument of strategy over tactics. They sounded the following warning in an article that summarized their monumental work:

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[3] Colin Gray defined tactics and strategy as such: "Namely, whereas tactics is the realm of the actual employment of armed forces, strategy refers to the intended or real consequences of the use of forces for the course and outcome of a war." See Colin S. Gray, *Explorations in Strategy* (Westport, CT: Praeger, 1998), 61; also see notes in Chapter One.

[4] Almost by definition, the operational approach will likely have prominent military features. However, the predominance of military activities within an operational approach will vary depending on the kind of war—regular or irregular—and various circumstances. Depending on those circumstances, it is also possible that the operational approach can do no better than address the symptoms of the underlying problem in the hope that doing so will facilitate the execution of other elements of strategy that can address the problem but are outside the purview of the operational commander.

> No amount of operational [or tactical] virtuosity...redeemed fundamental flaws in political judgment. ... This is because it is more important to make correct decisions at the political and strategic level than it is at the operational or tactical level. Mistakes in operations and tactics can be corrected [admittedly at a cost]. But, political and strategic mistakes live forever.[5]

Similarly, as John Cushman concluded in his chapter of *Military Effectiveness,* entitled "Challenge and Response at the Operational and Tactical Levels, 1914-45," the insight that produces good strategy allows even those who bungle its prosecution a chance of success, while first-rate tactical performance alone is insufficient.[6] Operational Design is the relentless pursuit of such strategic insight, which is of paramount importance.

From the vantage of Operational Design, the purpose of operational intelligence is to spark insight in the commander's mind that aids his conceptualization of the military operation or the campaign leading to the strategic goal. Operational intelligence considers both strategy and tactics as it informs their alignment. It is pulled between both poles. Because tactical intelligence is a powerful force-multiplier, it has an obvious and, at times, distracting magnetism. However, it is unwise to perform intelligence activities that facilitate tactics without first satisfying requirements at the operational level's higher end. As Thoman Mahnken wrote in *Technology and the American Way of War Since 1945,*

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[5] Bracketed words are those of the original authors. See Allan R. Millett and Williamson Murray, "Lessons of War," *The National Interest* (Winter 1988), as quoted in Williamson Murray and Allan R. Millett, "Introduction: Military Effectiveness Twenty Years After," in *Military Effectiveness: Volume 3, The Second World War*, New Edition, edited by Allan R. Millett and Williamson Murray (New York, NY: Cambridge University Press, 2010), xvi.
[6] John H. Cushman, "Challenge and Response at the Operational and Tactical Levels, 1914-45," in *Military Effectiveness: Volume 3, The Second World War*, New Edition, edited by Allan R. Millett and Williamson Murray (New York, NY: Cambridge University Press, 2010), 322, 335.

"Technological proficiency is no substitute for strategic acuity."[7] Thus, the lesson for the intelligence professional at the operational level of war is about balance.

Today, operational-level organizations control a number of intelligence, surveillance, and reconnaissance (ISR) capabilities, traditional and otherwise, that facilitate tactical employment. For example, the overwatch of friendly ground forces is a common mission for airborne platforms in Afghanistan and Iraq.[8] Modern airpower's "kill chain"—its capacity to find, fix, track, target, engage, and assess—requires a substantial commitment of collection and analytical resources for a single sortie.[9] Both overwatch and the "kill chain" are two examples of the indispensable contributions by ISR assets to the employment of force. Operational-level commanders and their intelligence advisors are correct to enable action by augmenting the ISR capabilities organic to lower echelon forces; however, intelligence support to tactics should seldom come at the expense of the operation or the campaign.

The most essential charge of operational intelligence is to assist the commander's understanding of the environment and the problem. From this understanding the operational approach emerges. The questions and efforts that assess the operational-level situation seldom coincide with those that facilitate tactical action. The intelligence director must ensure the aggressive, continual collection and analysis of the commander's priority intelligence requirements (PIRs) to make sense of the complex, dynamic combinations of objective and subjective factors that comprise the operational environment and the operational problem. In an ideal situation, the intelligence advisor supports all customers

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[7] Thomas Mahnken, *Technology and the American Way of War Since 1945* (New York, NY: Columbia University Press, 2008), 6.
[8] See US Air Forces Central's airpower summaries, accessed May 12, 2011, http://www.afcent.af.mil/news/pressreleases/index.asp.
[9] Adam J. Hebert, "Compressing the Kill Chain," *Air Force Magazine* 86, No. 3 (March 2003), 50-54.

sufficiently. When a choice must be made, the long-term ISR balance should favor the operational-level commander over the tactical unit.

The Malayan Emergency provides a supportive historical example as a final point on the relative importance of strategy and tactics to the operational-level commander and his intelligence apparatus. The Emergency's successful turning hinged on Lieutenant General Sir Harold Briggs's reframing of the situation away from a Malayan Communist Party (MCP)-centric problem that warranted a counterterrorism response, to a population-centric challenge that required a counterinsurgency approach based chiefly on political inclusion and improved governance. Had the Briggs Plan not reallocated the energy and resources of the British government as it did, it seems unlikely that MCP support would have wilted.

In Malaya, tactical intelligence depended on assistance from the population. While intelligence support to tactical units was almost non-existent during the prosecution of the counterterrorism strategy, after the Briggs Plan took effect Special Branch (SB) produced increasingly accurate assessments that enabled the methodic elimination of communist insurgents. Thus, the most important intelligence products of the Malayan Emergency were those that helped Briggs and General Sir Gerald Templer accurately frame the situation and arrive at their successful operational approach.

Operational Intelligence and Organizational Learning

A related lesson offered by Operational Design to the practice of operational intelligence concerns the role of intelligence in organizational learning. Once Briggs correctly framed the Malayan Emergency, the probability of success improved significantly. Operational Design reminds us that operational intelligence must foremost assess the operational-level situation to aid the commander's understanding. How is this done? What are the questions that assess the situation and evoke learning?

Stephen R. Rosen, in his book *Winning the Next War: Innovation and the Modern Military*, averred that wartime learning and innovation are uncommon.[10] A brief consideration of Rosen's argument and his perspective on intelligence will help illuminate how operational intelligence aids organizational learning. Rosen asserted that armed forces measure routinely their operational performance but are only capable of gauging established strategic measures of effectiveness for which feedback loops already exist.[11] His point is worth restating in full here:

> When military innovation is required in wartime, however, it is because an inappropriate strategic goal is being pursued, or because the relationship between military operations and that goal has been misunderstood. The old ways of war are employed, but no matter how well, the war is not being won. A new strategic goal must be selected and a new relationship between military operations and that goal must be defined. Until that happens, information will be collected that is relevant to the old goals and relations, and there is no reason to suppose that this information will suggest new, alternative ways of winning the war. Until the strategic measure of effectiveness has been redefined, organizational learning relevant to innovation cannot take place.[12]

Rosen's argument about the circumstances that require wartime innovation has merit and highlights an important potential contribution of intelligence at the operational level of war. Evaluating the strategic goal and the relationship between military operations and that goal is a purpose of intelligence assessments and of the environmental framing step in the Operational Design process. Rosen dismissed intelligence— the determination of "the number and location of enemy units"—as an inadequate mechanism for learning and improving organizational

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[10] Stephen R. Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, NY: Cornell University Press, 2001), 29-39.

[11] Rosen, *Winning the Next War*, 35; Rosen defined a strategic measure of effectiveness as, "Taken together, the definition of the strategic goal, the relationship of military operations to that goal, and indicators of how well operations are proceeding...."

[12] Rosen, *Winning the Next War*, 35.

performance in wartime.[13] However, his conception of wartime intelligence is overly circumscribed. What he describes as incapable of performing this crucial task is tactical intelligence. On that point he is correct. Briggs created the organs of operational intelligence during the Malayan Emergency—the Director of Intelligence and staff—because tactical intelligence performed a different role. Operational and tactical intelligence are qualitatively different.

A useful model for conceptualizing the role of operational intelligence in organizational learning is John Boyd's Observe-Orient-Decide-Act or OODA Loop. Antoine Bousquet, who wrote *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity*, noted that the orientation stage distinguishes the OODA formulation from previous cybernetic models.[14] Observation of the environment and opponent, i.e. collection activities, provides data for the analysis that orients the system, informs decisions, and implicitly guides subsequent action and observation.[15] When orienting, the system assesses observations using existing analytical frameworks, but it also evaluates the utility of those schema to explain its observations by synthesizing what is with what should be.[16] The ability to make sense of a situation and simultaneously refine sense-making mental models imbues the OODA construct with vitality.

The capacity to reorient internally enables an organization to adjust its strategic measures of effectiveness and develop new operational approaches to achieve them. Accomplishing these adjustments through reflection is also the goal of Operational Design's reframing stage; furthermore, the faculty to do so is an important contribution of operational intelligence. In addition to informing the

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[13] Rosen, *Winning the Next War*, 30.
[14] Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (New York, NY: Columbia University Press 2009), 188.
[15] Bousquet, *The Scientific Way of Warfare*, 188.
[16] Bousquet, *The Scientific Way of Warfare*, 189.

decisions of commanders, intelligence assesses the outcomes of those decisions and evaluates their effectiveness in accomplishing operational and strategic objectives.[17] Operational intelligence must also perpetually evaluate the analytical frameworks that drive decision making.[18] In this way, intelligence makes possible organizational learning.

Because military organizations are hierarchical and commander-centric, organizational learning, aided by operational intelligence, takes place primarily through interaction among the commander and key advisors.[19] Donald Schön concluded that "reflective practitioners" think about the system in which they act through time.[20] Good intelligence places system events in the context of time to aid the commander's understanding.

Vijay Govindarajan and Chris Trimble offered several techniques for reflective practitioners to facilitate strategic innovation and learning, including focusing on critical unknowns instead of concentrating on planning details, considering a plan's underlying assumptions rather than attempting futilely to predict the future, anticipating trends instead of speculating on specifics, conducting frequent historical reviews that produce reminders of past lessons, and measuring leading indicators instead of those that depict present circumstances.[21] These are the questions of understanding and learning. Instead of attempting to predict the future of complex, adaptive systems, they seek to illuminate

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[17] Michael I. Handel, "Leadership and Intelligence," in *Leaders and Intelligence,* edited by Michael I. Handel (Totowa, NJ; Frank Cass, 1989), 9; *Joint Publication 2-0: Joint Intelligence* (22 June 2007), I-8, IV-6; also see Chapter Two of this paper.

[18] Bousquet, *The Scientific Way of Warfare*, 190. Bousquet describes Boyd's process of analytical "destruction and creation." This author asserts that this is (or should be) a contribution of operational intelligence.

[19] Rosen, *Winning the Next War*, 38-39. Rosen argues that when innovation occurs in hierarchical and centralized organizations, it is more likely to be more far-reaching and rapid.

[20] Donald A. Schön, *The Reflective Practitioner: How Professionals Think in Action* (London: Temple Smith, 1983); Lawson, *How Designers Think,* 291.

[21] Vijay Govindarajan and Chris Trimble, "Strategic Innovation and the Science of Learning," *MIT Sloan Management Review* 45, no. 2 (Winter 2004), 70-74. Also see Chapter Five of the current work.

the past in the effort to make sense of the present and anticipate and adapt to the future.[22] As a group, these questions look beyond the immediate and tactical. They are, in essence, a framework for the commander's priority intelligence requirements (PIRs).

PIRs articulate key questions commanders and planners have about the enemy and the operational environment.[23] They are products of operational decisionmaking and planning processes and often derive from the decision points identified in the plan.[24] However, as Marc Spinuzzi argued in his paper on commanders' information requirements in complex environments, PIRs must support both execution decisions and adjustment decisions.[25] While the former seek to learn specific future events, the latter drive assessments that indicate a change (or lack of change) in the status-quo that may require modifications to the conceptual framework or plan.[26] Thus, operational-level PIRs should ask the questions that help the commander understand the situation and learn from its variations.

The coupling of operational intelligence and Operational Design reinforces wartime organizational learning. Both aid the intuition and analyses of the commander who is the organization's central node. Collective learning also occurs through Operational Design's intentional use of discourse. Peter Senge, the author of *The Fifth Discipline: The Art and Practice of the Learning Organization*, argued that optimal organizational learning happens through a systems-thinking approach that involves building a shared vision, recognizing existing mental models, developing teamwork, and encouraging personal mastery of

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[22] Govindarajan and Trimble, "Strategic Innovation and the Science of Learning,"74.
[23] JP 2-0, I-8; also see Chapter Two of the current work.
[24] *Joint Publication 2-01, Joint and National Intelligence Support to Military Operations (7 October 2004),* II-2; Marc A. Spinuzzi, "CCIR for Complex and Uncertain Environments," Unpublished Monograph (Ft. Leavenworth, KS: School of Advanced Military Studies, 01 May 2007), 18-22.
[25] Spinuzzi, "CCIR for Complex and Uncertain Environments," 18.
[26] Spinuzzi, "CCIR for Complex and Uncertain Environments," 97.

relevant skills.[27] Through discourse commanders develop and share their understanding of the situation, evaluate competing schema, foster a shared commitment to the organizational goal, and encourage participation in the design of strategies and plans by competent contributors throughout the organization.[28] Operational Design's discourse provides the vehicle for collective learning to occur; operational intelligence elevates the dialogue by introducing into it rigorous analytical models, intelligence-based descriptions of reality, and the continual cognitive dissonance required to critically evaluate prevailing conceptual frameworks.

Together, intelligence and Design at the operational level of war facilitate organizational learning and innovation. Furthermore, Operational Design reminds us of operational intelligence's crucial responsibility in accomplishing this function. Intelligence aids the situational understanding of the commander over time. It provides post-hoc assessments of decisions and evaluates the effectiveness of operations in accomplishing operational and strategic objectives. Furthermore, it reconsiders the utility of existing schema and models for interpreting reality, enabling the organization to reorient or reframe as necessary. The PIRs that shape collection and analysis must reflect the importance of assessments and their contribution to organizational learning. Finally, by participating directly in the discourse, intelligence professionals encourage positive and more rapid learning by the commander and the collective organization.

Collaboration and Operational Intelligence

The collaborative nature of Operational Design should remind the analyst of the considerable advantage that interaction with commanders, colleagues, and customers yields to the product and process of

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[27] Peter Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization,* 2nd Edition (New York, NY: Currency, 2006), 12.
[28] See Chapter Six of this work.

intelligence. Both intelligence and Design benefit enormously from the active participation of the commander. Analysts and designers are, after all, extensions of the commander's mind. When their interaction with the commander is limited, there is a low probability that their process is responsive to his needs and that their product contributes usefully to his understanding. To the extent Design encourages commanders to collaborate, it also benefits operational intelligence.

If commanders are open-minded, collaborative leaders, then directors of intelligence must aggressively pursue opportunities to be collaborative advisors. Much depends on the personality of the commander and his preferred means of learning. Nevertheless, the intelligence most beneficial to the commander will seldom be found in glossy reports or scripted briefings. Rather, it will be in the active, two-way conversations with chief analysts regarding the nature, tendencies, and relationships of environmental and opposing systems. General Templer told his intelligence advisor, Jack Morton, "Mind you, we've got to like each other. It won't work otherwise."[29] Templer was not just being courteous; rather, he expected a very interactive relationship with his intelligence apparatus.

Collaboration should also occur among partners. The role of discourse in Operational Design is instructive for intelligence not because it is new to the analytical community but because it reminds analysts that there is little room for ego in the endeavor to improve the intelligence product and process. Active engagement by the analyst in a critical dialogue with other knowledgeable analysts raises the understanding of all participants and the likely utility of the scrutinized mental models that explain and anticipate complex situations.

While intelligence classification levels discourage the participation of analysts in a discourse beyond the intelligence community, doing so

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[29] John Cloake, *Templer: Tiger of Malaya* (London: Harrap Limited, 1985), 229; also see Chapter Four of this paper.

carries potential benefits. First, analysts share their expertise in a way that elevates the collective understanding of a situation. Second, analysts who frequently interact with their customers are more likely to develop a mutual understanding that can improve the precision of both intelligence requirements and tailored products. Third, participation in a semi-open discourse may also broaden their customer base to include actors previously unfamiliar with the value of their analytical products.

Under Templer's command, the British Army augmented SB with intelligence officers to facilitate reporting from and planning support to tactical forces.[30] These officers provided the connective tissue between SB and front-line units, fostering a dialogue that substantially increased the quality of combat reports made available to SB analysts and the value of intelligence products provided to lower-echelon units. The benefits of collaborative followership, collaborative partnership, and the device of discourse are useful reminders for intelligence professionals of the teamwork required for success at the operational level of war.

The Joint Intelligence Preparation of the Operational Environment

The most obvious expectation placed upon operational intelligence by Operational Design is a systems-thinking approach to understanding the operational environment. General James Mattis, in his "Vision for a Joint Approach to Operational Design," identified the intelligence director as a "key player in the early design effort" who "leads this effort for the commander."[31] Systems thinking has long been part of intelligence analysis, for which the Joint Intelligence Preparation of the Environment (JIPOE) offers a contemporary manifestation.

The JIPOE should be understood as both a product and a process. As the former, it embodies a momentary understanding of relevant

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[30] Riley Sunderland, "Antiguerrilla Intelligence in Malaya, 1948-1960," Memorandum RM-4172-ISA (Santa Monica, CA: The RAND Corporation, September 1964), 27; also see Chapter Four of this paper.

[31] James M. Mattis, "Vision for a Joint Approach to Operational Design," Memorandum for US Joint Forces Command (6 October 2009), accessed April 29, 2011, http://www.jfcom.mil/newslink/storyarchive/2009/aod_2009.pdf.

environmental systems and their interconnections. Capturing this understanding in a report permits its dissemination among key advisors and planners and helps build the collective knowledge of the organization. The JIPOE is also a living process that drives the intelligence analysts to continually accumulate knowledge on relevant systems and linkages continually. As the situation evolves, so must the collective understanding. Therefore, the enhanced knowledge of the analysts who performed the critical thinking required to understand the situation embodies the real product of the JIPOE. Both the report and its creators are crucial to building a shared understanding of the evolving situation.

The Intelligence-Designer

Knowledge of the Operational Design process also reminds the commander of the analyst's central role in the formulation of operational-level approaches. Complex problems are part and product of their complex environments. The two are inseparable and must be understood together. Furthermore, according to designers, as understanding of the situation builds, solutions become self-evident.[32] Who better to aid the commander's conceptualization of the environment and problem than the intelligence analysts whose duty it is to explore and understand the complexities of both? Who better to assess the potentialities of proposed operational approaches than the intelligence analysts whose job it is to know the strengths, vulnerabilities, and inter-relationships of the environmental and enemy systems subject to action?

There are multiple advantages to including one or more knowledgeable intelligence analyst in the commander's core design team. As implied in the questions above, analysts have the expertise to aid the commander's understanding of a situation. Their expertise also elevates

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[32] For example, see John F. Schmitt, "A Systemic Concept for Operational Design," Unpublished Paper: 3, 5-7, accessed December 20, 2010, http://www.au.af.mil/au/awc/awcgate/usmc/mcwl_schmitt_op_design.pdf; also see Chapter Six of this paper.

the understanding of other designers and discourse participants. Third, the analyst's depth of understanding provides him an intuition that is critical in dynamic situations.[33] The impetus for including intelligence analysts in the core design team is greatest when the corporate understanding of a situation is low and the time available to think is limited. Predictability is not the nature of crisis and plans are seldom executed as they were developed. When time is compressed, those designers with a deep knowledge of a situation are best-positioned to understand quickly the implications of change throughout the relevant systems and assist the commander's re-conceptualization of the problem.

Fourth, intelligence analysts can help balance the action-prone tendencies of master tacticians. It is not uncommon to find the latter in command and key planning positions. Commanders, designers, and planners who are inexperienced at the operational level of war are likely to be more comfortable with the capabilities of friendly forces than they are familiar with the complexities of the situation. Knowledge of capabilities is necessary and informs design. However, a fascination with tactical brilliance can also misguide operational approaches.

Millett and Murray, in their analysis of effectiveness during both World Wars, noted, "German battlefield superiority only served to encourage appalling strategic myopia…. Combat (or tactical) superiority became rationalized as the way to make any strategy work."[34] Paraphrasing the historian Russell Weigley, the Germans' tactical and

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operational reach exceeded their strategic grasp.[35] Similarly, Mahnken
cautioned, "Indeed, technical prowess may breed hubris."[36] Coupling the
analyst's realism with the tactician's enthusiasm helps balance the
discourse and attenuate the Siren's call of tactical excellence that can
seduce strategic judgment.

Analysts also benefit greatly from their inclusion in the core design
team. Frequent interaction with the commander familiarizes the analyst
with the commander's concerns and patterns of thinking. Knowledge of
the former allows the analyst to better harness operational intelligence
activities on behalf of the commander. It may drive adjustments to the
collection plan and generate analytical products. It may also permit the
refinement of the commander's PIRs. Meanwhile, a familiarity with the
commander's patterns of thought enables the keen analyst to anticipate
the commander's concerns and increase the responsiveness of
intelligence to them. Interaction with the commander also familiarizes
analysts with the commander's preferred learning techniques.
Knowledge of these permits the tailoring of intelligence products to best
convey information to the commander. Additionally, the experience and
expertise that commanders often bring to their positions make them
among the most insightful analysts in the command. Meaningful
dialogue between the commander and the analyst will, in general, elevate
the understanding of both. The analyst's collaboration among other
design team members—who are usually imaginative, critical thinkers
themselves—will likewise hone the analyst's thinking. The central
placement of the intelligence analyst in the commander's design process
benefits all involved.

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[35] Russell F. Weigley, "The Political and Strategic Dimensions of Military Effectiveness,"
in *Military Effectiveness: Volume 3, The Second World War,* New Edition, edited by Allan
R. Millett and Williamson Murray (New York, NY: Cambridge University Press, 2010),
363.
[36] Mahnken, *The American Way of War Since 1945*, 6.

Not all analysts have what it takes to be a member of the commander's inner circle or core design team. In addition to expertise on a given situation, they must also have rigorous critical thinking skills, the intellectual flexibility to accommodate new ideas and broad perspectives, the creativity to imagine alternate futures, the moral courage to defend unfavorable analysis, and the communication skills to shape the discourse and persuade commanders and fellow designers. Additionally, the analysts must have the necessary rank to participate in a dialogue among rank-conscious actors. Finally, to the extent the commander uses the design team to influence subsequent planning and implementation, the analysts should have direct or indirect authority over the command's collection and analytical activities. In sum, the ideal analyst to be a member of the commander's inner circle combines the attributes of the intelligence advisor and the designer.

The Malayan Emergency illustrated the advantage of including the intelligence professional in the commander's core team. Both Briggs and Templer appreciated the role of operational intelligence. They were open-minded men with experience leading and consuming intelligence at this level of war. They understood its advantages and limits, and they both chose to elevate its status and responsibility within their commands. The intelligence and organizational reforms that Briggs initiated—including the creation of a Director of Intelligence—Templer expanded and institutionalized. By mid-1952, the function of intelligence achieved a central position in the operational-level command's organization and processes, as symbolized by the Director of Intelligence Jack Morton's membership on the Operations Committee. To the extent there was a core design team in Malaya, the Operations Committee was it. While intelligence alone did not win the Malayan Emergency, there is an unmistakable positive correlation between the effectiveness of the counterinsurgency and the effectiveness of intelligence. The inclusion of

the key intelligence advisor in the commander's core design team was an innovative part of the success.

Conclusions

Operational intelligence and Operational Design are symbiotic partners that enrich the operational art. They are both complex cognitive processes intended to assist the commander's understanding of the situation. They share a responsibility to enable effective, dynamic, uncertainty-tolerant operations on behalf of the commander. While there is little new in the Operational Design literature that is unfamiliar to the intelligence community, the Operational Design process provides intelligence professionals at the operational level of war several key reminders.

First, the tension between serving the commander and facilitating tactical action must favor the commander. Operational intelligence is not simply tactical reconnaissance writ large. While it identifies opportunities and vulnerabilities for exploitation, it also informs the design of the operational approach. Operational intelligence best supports individual Soldiers, Sailors, Airmen, and Marines by helping the commander conceptualize winning operational concepts that lead to desired strategic outcomes.

Second, operational intelligence provides the command the vital capacity to learn and innovate by continually assessing the consequences of decisions and operations as they relate to the accomplishment of strategic and operational goals. Furthermore, by evaluating the utility of the conceptual frameworks that guide decisions and action, intelligence professionals also enable their commands to reframe evolving situations and reorient operations.

Third, for operational intelligence to achieve its full potential, intelligence professionals must regularly and openly collaborate with the commander, with other analysts, and with customers throughout the command. Most significant for the success of operational intelligence is

the cultivation of a collaborative relationship with the commander. An open, engaging, frequent dialogue pays dividends to all involved.

Fourth, designers and planners rely on the systems analyses conducted by intelligence professionals and captured in the JIPOE. Strategists, analysts, and planners must use the JIPOE to elevate their own understanding of the situation's complexity. However, the most important JIPOE products are the analysts who developed situational awareness through their critical thinking about the environmental and opposing systems. Wherever possible, these key human resources should provide the leaven to design and planning teams.

Finally, expert analysts belong foremost in positions that are central to the commander's conceptualization of the environment, problem, and operational approach—the core design team. Their inclusion benefits the commander, the design process, and the analyst's ability to harness operational intelligence on behalf of the commander. Not every expert analyst will be a good fit for the responsibility of joining the commander's inner circle. However, the ideal advisor will embody the virtues of analytical expertise, intellectual flexibility, imagination, moral courage, and strong communication skills.

That advisor—the intelligence-designer—will be the professional who can address strategic matters without ignoring tactical ones; facilitate learning by an organization, especially by its commander; build a collaborative relationship with the commander and key staff; convey a systems understanding of the environment and opponent; and help design the effective operational approaches that achieve the appropriate operational objectives that solve wicked problems. He or she will synthesize the complementary activities of operational intelligence and Operational Design. In sum, the intelligence-designer will offer the flexible-minded and collaborative commander foreknowledge because he understands the enemy situation, operational environment, strategic goals, and tactical realities.

Conclusions

If we should have to fight, we should be prepared to do so from the neck up instead of from the neck down.

Jimmy Doolittle

Uncertainty is an inescapable part of war, and thinking is too often an undervalued activity within it. "Wicked" problems and the complex, adaptive systems that produce them generate uncertainty; the imperative for action in war decreases patience for the critical analysis required to solve complex problems. Both operational intelligence and Operational Design endeavor to mitigate uncertainty in war; they also aim to guide conflict thoughtfully toward the accomplishment of operational and strategic objectives, bridging tactical action to strategic outcome.

The intelligence analyst and the operational designer are both extensions of the commander's mind. The analyst seeks to ask and answer the right questions; the designer strives to identify and solve the right problems. Analysts collect and analyze information to build understanding of a complex operational situation; designers translate understanding into an approach for achieving operational aims and strategic ends. Analysts endeavor to make sense of historical and current circumstances to inform future action; designers labor to shape the future based on what is learned from the past and known about the present. Without uncertainty in war, there would be no need for operational intelligence or Operational Design; but because of uncertainty in war, operational intelligence and Operational Design are harnessed to the same yoke.

This project evaluated how the practice of intelligence at the operational level of war should be influenced by emerging concepts of Operational Design. It began with an analysis of operational intelligence, including a historical assessment of its role in the 1948-1960 Malayan

Emergency. It then considered Operational Design, including a Design-based reassessment of the Malayan Emergency. Finally, it synthesized insights from both operational intelligence and Operational Design to produce lessons for commanders and their intelligence professionals. This conclusion summarizes the project's major findings and considers some implications for the organization, training, and equipment required for effective operational intelligence in the information age.

Operational Intelligence

Operational intelligence is state activity to understand foreign entities and potential battlespaces for the purpose of planning and conducting campaigns and major operations; perforce, it must also include some consideration of strategy and tactics. It is, fundamentally, intelligence at the operational level of war; and it informs the alignment of tactical employment with strategic objectives.

The practice of operational intelligence involves the collection of information about the adversary and the battlespace and the analysis of that data to produce knowledge and insight. Data are collected from a variety of secret and overt sources. Directors of intelligence must balance their support to subordinate forces, planners, and commanders. While assistance to lower-echelon forces facilitates action, the operational-level commander serves strategy and owns operations and campaigns.[1] Successful analysis requires critical thinking, including an awareness of cognitive biases and the limitations of intelligence. Systems analyses, such as that recorded in the Joint Intelligence Preparation of the Operational Environment (JIPOE), help build a realistic understanding of the adversary and the battlespace, which supports plan development and the operational-level commander's decisionmaking process. Ultimately, intelligence outputs—advice, estimates, and

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[1] The operational-level commander is from the top-down perspective a servant of strategy; however, his advice and the outcomes of his operations and campaigns will also shape strategy.

assessments—must support the commander. Operational intelligence professionals are, after all, an extension of the commander's mind.

Operational intelligence is not a substitute for the commander's judgment; rather, it is an aid to it. Commanders must understand how to exploit intelligence effectively. The attributes of the commander and the intelligence advisor and the partnership between them are crucial to the successful use of operational intelligence. The ideal relationship is open and engaging with frequent and regular interaction. It is mutually respectful without becoming personal. The commander ensures that the intelligence advisor is an integral part of his inner circle but also permits the advisor the degree of autonomy necessary for objective analysis. The ideal advisor is an exemplar of critical analytical and communication skills, intellectually flexibility, and courage. The traits of the commander are most critical to the optimal use of operational intelligence. Personality, experience leading intelligence, and self-perceptions of vulnerability and expertise shape the commander's use of intelligence. Open-minded commanders tolerate uncertainty and alternative viewpoints. Experienced commanders are familiar with the capabilities and limits of intelligence. Aggressive and risk-tolerant commanders are most sensitive to the opportunities and dangers revealed by their intelligence. Commanders who exemplify open-mindedness, are experienced, and have a preference for aggressive operational concepts are best-suited to exploit operational intelligence in their decisionmaking.

Operational Intelligence in the Malayan Emergency

The Malayan Emergency is an intelligence success story, though intelligence alone did not win the counterinsurgency. Intelligence—along with psychological operations, population control, dynamic leadership, organizational learning, and policies of decolonization and Malayanization—contributed to the Emergency's successful conclusion. Nevertheless, the positive correlation between effective intelligence and effective counterinsurgency is impressive. Operational intelligence and

operational effectiveness maintained a multifarious, reinforcing relationship that produced steadily increasing mutual gains. As intelligence improved, security did as well. And, as security improved, Chinese civilians provided the information needed to defeat the insurgency.

At the Emergency's start, intelligence and security operations were in disarray. British intelligence failed to recognize or take seriously the emergence of a communist insurgency during the late 1940s. From an insufficient understanding of the problem came an ill-advised counterterrorism strategy that delayed counterinsurgency progress by as much as two years.

The intelligence system in Malaya was still in generally poor condition when Lieutenant General Sir Harold Briggs arrived in 1950. Briggs's prescient conceptualization of the operational environment and problem appear to have been derived from an amalgam of sources, including improving intelligence assessments. Briggs placed enormous importance on intelligence and improved the system to the extent permitted by his limited authority, including the advent of the Director of Intelligence position to shoulder the responsibilities that lay beyond tactical intelligence. Briggs's most important contribution to the Emergency's eventual success was the creation of the Briggs Plan that would set the conditions for victory.

General Sir Gerald Templer's energetic execution of the Briggs Plan produced substantial counterinsurgency gains. Furthermore, his progressive intelligence reforms invigorated both intelligence and operations. He removed bureaucratic barriers to effective collection and analysis; meanwhile, he improved operations by making intelligence integral to planning and execution. Templer's experience with and appreciation of intelligence prepared him to lead his intelligence apparatus. He did so in partnership with an empowered and capable intelligence director with whom he enjoyed that kind of special

relationship crucial to the successful exploitation of operational intelligence.

Operational Design

Operational Design is the use of Design to address the complex problems facing commanders at the operational level of war. It represents an application of systems theory to the operational art. Systems thinking enables an appreciation of complex, adaptive systems and their continual change. It also assists designers in identifying and solving the ill-structured, "wicked" problems found in social systems. Designers grapple with social challenges through a mental process by which they conceptualize the problem as a product of its environment, invent a solution, visualize the problem-solution relationship, appraise the solution, and learn through reflection.

Design helps mitigate complexity. Its systems-thinking approach stimulates a holistic appreciation of the problem and solution, thereby closing partly the gap between understanding and reality. Its collaborative elements allow for the plural decisionmaking that is often necessary in social systems. Additionally, its iterative nature gives it the flexibility to accommodate the uncertainty and dynamism inherent in complex problems. Design is well-matched to address complex social challenges, including those found in war.

Operational Design applies the tools of Design to the complex problems of war. Carl von Clausewitz admonished that determining the kind of war that is to be undertaken is the most essential of all judgments made by the statesman and commander. Operational Design assists this consequential assessment at the operational level.

Operational Design occurs in addition to planning. It enriches the operational art through systems thinking, collaborative leadership, iterative decisionmaking and organizational learning. Additionally, it places special emphasis on distilling a problem down to its root causes. Operational Design entails concurrent, supportive endeavors to

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understand the interconnected operational environment in which the problem exists and in which potential action will occur; the problem itself, in all its complexity; and the most effective approach to solve the problem. The operational approach emerges from a growing appreciation of the situation.

Operational Design is a commander-led process that employs an inclusive and critical discourse to analyze concepts, synthesize ideas, cultivate learning, and promote a shared understanding of the problem that drives the organization toward an effective operational approach. Design teams represent an extension of the commander's mind whose purpose is not to think on behalf of the commander, but to assist the commander's critical and creative conceptualization of looming complex challenges.

Operational Design in the Malayan Emergency

The Malayan Emergency is an instructive historical example that highlights certain elements of Operational Design. Collaborative leadership and discourse were crucial to the development of understanding for both Briggs and Templer. Briggs's appreciation of the complex operational environment and "wicked" problem that was the Emergency prompted him to reframe the challenge as one of good governance. He concluded that the current counterterrorism strategy was inadequate because it could not address the root problem of Chinese disenfranchisement. From his improved understanding emerged an operational approach that became the winning Briggs Plan.

Templer developed his own appreciation of the situation upon arriving in Malaya and determined that a reframing was unnecessary. His understanding of the operational environment, the problem, and the optimal operational approach was consistent with that of Briggs. He set about implementing the Briggs Plan with verve and dynamism. Furthermore, he surrounded himself with a core design team comprised

of key stake-holders within his command, including his director of intelligence.

Synthesis of Operational Intelligence and Operational Design

Operational intelligence and Operational Design are symbiotic cognitive processes that enrich the operational art. They both assist the commander's understanding of the operational situation and share a duty to enable effective, dynamic, uncertainty-tolerant operations. While there is little in the Operational Design literature that is novel to the intelligence community, the Operational Design process provides intelligence professionals at the operational level of war several significant reminders:

First, the balance between serving the commander and supporting tactical action must tilt toward the commander. Operational intelligence is not tactical reconnaissance writ large. It best assists lower-echelon forces by aiding the commander's design of a winning operational approach that achieves desired strategic outcomes.

Second, operational intelligence enables organizational learning in the command by continually assessing the consequences of decisions and operations as they relate to the accomplishment of strategic and operational goals. Additionally, by evaluating the utility of the conceptual frameworks that guide decisions and action, intelligence professionals enable their commanders, hence their organizations, to reframe changing situations and reorient operations.

Third, to achieve the full potential of operational intelligence, intelligence professionals must collaborate with the commander, with other analysts, and with customers throughout the command. Most significant for the success of operational intelligence is the cultivation of a collaborative relationship with the commander. An open, engaging, frequent, two-way dialogue pays dividends to all involved.

Fourth, designers and planners rely on the systems analyses conducted by intelligence professionals and captured in the JIPOE.

Strategists, analysts, and planners use the JIPOE to elevate their own understanding of the situation's complexity. However, the most important products of the JIPOE process are the analysts themselves. They who developed situational awareness through their critical thinking about the environmental and opposing systems become invaluable commodities in the organization. Wherever possible, these key human resources should matrix across the command to provide design and planning teams the leaven of operational intelligence.

Finally, expert analysts belong foremost as central fixtures in the commander's inner circle and core design team where they can best assist the commander's conceptualization of the environment, problem, and operational approach. Their inclusion benefits the commander, the design process, and the analyst's ability to harness the strength of operational intelligence. Not every expert analyst will be suited for the responsibility of performing in the commander's inner circle. The ideal advisor will embody the virtues of analytical expertise, intellectual flexibility, imagination, moral courage, and strong communication skills. That advisor—the intelligence-designer—will be the analyst who can address strategic matters and tactical ones; encourage organizational learning, especially through that of the commander; cultivate a collaborative relationship with the commander and key staff; impart a systems understanding of the environment and opponent; and help construct effective operational approaches that achieve the operational objectives that solve "wicked" problems. He or she will synthesize the complementary activities of operational intelligence and Operational Design to offer the flexible-minded and collaborative commander an otherwise unavailable level of foreknowledge.

Implications

From the synthesis of operational intelligence and Operational Design emerges a deeper understanding of both processes. It also reveals several implications for the education, training, and equipping of

the joint force. Because operational intelligence informs the alignment of tactical action with strategic objectives, commanders must balance two inherent, related tensions: one— between tactics and strategy—is part of operational art, and the other—between collection and analysis—is endemic to intelligence. Disequilibrium in either decreases the effectiveness of operational intelligence ergo joint operations, and elevates the risk of intelligence failure at the operational level of war. Alarmingly, current trends suggest the balances are toppling toward collection in support of tactical operations.

Intelligence failure is a tired accusation that often reveals more about the speaker's ignorance of intelligence than it describes accurately the nature of a particular surprise. Failures occur when an existing capability to collect preventive information is not employed, or when such information is collected but not understood. As Richard Betts explained in his 1978 article "Analysis, War, and Decision," when surprises happen—which is inevitable in our complex world—they are seldom the fault of collectors, sometimes the oversight of analysts, and most commonly the negligence of the decisionmakers whose policies, plans, and questions drive the intelligence process.[2] At the operational level of war, commanders are those decisionmakers. Therefore, in general, an intelligence failure is a failure of command.

To succeed, operational-level commanders must balance the tension between tactics and strategy. Both tactics and strategy are essential to effective operations. Tactics without strategy lacks purpose, and strategy without tactics is toothless. Nevertheless, as Allan Millett and Williamsom Murray argued in their landmark work *Military Effectiveness*, no amount of tactical virtuosity can compensate for errors

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[2] Richard K. Betts, "Analysis, War, and Decision: Why Intelligence Failures are Inevitable," *World Politics* 31, no. 1 (October 1978), 61.

in strategic judgment. Tactical mistakes may be costly, but strategic ones "live forever."[3]

In today's fight, operational intelligence professionals and organizations concentrate on the employment of intelligence, surveillance, and reconnaissance (ISR) assets—traditional and otherwise—to facilitate tactical action. The overwatch of friendly ground forces and the sensor-shooter couplings in modern airpower's "kill chain" represent two examples of how ISR contributes to the execution of combat power. Commanders are correct to enable tactical action by augmenting the force-multiplying ISR capabilities organic to lower-echelon forces. While intelligence support to tactics should seldom come at the expense of the operation or campaign, refusing to assist tactical units is almost never a palatable choice.

To succeed, commanders must also balance the tension between collection and analysis. The recent investment in and proliferation of sensors and platforms enhance collection, and increasingly powerful ISR capabilities discern very small objects and momentary events. However, collection alone does not produce intelligence. Analysis is "the thinking part of the intelligence process," according to James Bruce and Roger George.[4] The questions of tactical intelligence are numerous in war, but they typically demand little analytical depth. Making sense of the complex problems that challenge the operational commander requires a significant and perpetual analytical investment. Together, operational-level collection and analysis assist commanders with conceptualizing the operational environment, its problems, and winning operational

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[3] Allan R. Millett and Williamson Murray, "Lessons of War," *The National Interest* (Winter 1988), as quoted in Williamson Murray and Allan R. Millett, "Introduction: Military Effectiveness Twenty Years After," in *Military Effectiveness: Volume 3, The Second World War*, New Edition, edited by Allan R. Millett and Williamson Murray (New York, NY: Cambridge University Press, 2010), xvi.

[4] James B. Bruce and Roger Z. George, "Intelligence Analysis—The Emergence of a Discipline," in *Analyzing Intelligence: Origins, Obstacles, and Innovations*, edited by Roger Z. George and James B. Bruce, (Washington, DC: Georgetown University Press, 2008), 1.

approaches. In this way, balanced ISR reduces the chances of surprise and increases the probability that tactical action achieves strategic objectives. Nevertheless, once again, refusing to assist tactical units with the support they require is not a viable alternative.

Recent joint force ISR enhancements and experiences employing ISR capabilities threaten to institutionalize an imbalanced understanding of operational intelligence that favors collection and tactical intelligence. Maintaining the proper balance within operational intelligence is possible only through the strengthening of the joint force's analytical capacity. Four long-term suggestions to refocus operational intelligence follow:

First, the most promising way to ensure the long-term equilibrium of operational intelligence is through the education of future commanders, intelligence advisors, and staffs. Most professional officers are naturally more comfortable with tactics than with operational-level concepts, and their understanding of intelligence is skewed similarly. The schools of professional military education are responsible for preparing future commanders and their advisors for the peculiar demands of operational-level leadership. The proper role, purposes, priorities, strengths, and limits of operational intelligence in the design and prosecution of operations and campaigns must be prominently featured in their curricula.

Second, joint force processes and systems must better aggregate collected information—regardless of its source, location, or classification—for central, operational-level analysis. While the questions of tactical and operational-level analysis differ, tactical units and sensors can collect data relevant to operational-level analysis. Development of the systems and training required to push that information into central databases in intelligible, reference-friendly formats would increase the efficiency of operational intelligence and decrease, in part, the struggle for limited ISR assets.

Third, the joint community can create incentives for the development and retention of operational-level analysts—including intelligence-designers—by establishing rigorous education, training, and experience requirements for key joint intelligence positions at the field-grade, colonel, and general officer levels. Doing so would encourage the services to invest in and value officers with the skills and experiences needed to advance in the joint intelligence community; in turn, through the development and retention of such officers, the services would propagate a balanced understanding of operational intelligence that will best enable the joint force and its commanders to think through uncertainty at the operational level of war.

Fourth, equipping both operational-level headquarters units and tactical-level units with sufficient, dedicated ISR collection and analytical capabilities to satisfy their wartime intelligence requirements would alleviate much of the tension within operational intelligence. While perhaps not resource-efficient, this recommendation would do more than signal tacitly the importance of intelligence to operations; rather, it would equip the joint force to perform intelligence-led campaigns and operations.

From the study of Operational Design emerges a deeper understanding of the role required of operational intelligence. Operational intelligence is not simply tactical reconnaissance writ large. It informs the alignment of tactics and strategy through its facilitation of a shared systems understanding of the operational environment and problem by the commander and key staff. An operational approach materializes from this understanding that seeks to address effectively the underlying causes of the operational, or in some cases strategic, problem. Operational intelligence also enables organizational learning by evaluating the effectiveness of operational approaches and the cognitive schema used to create them. Services must develop and retain analysts with superior expertise, mental flexibility, imagination, courage, and

communication skills who will aid operational-level commanders in thinking through their challenges. These analysts belong in central positions alongside the commander and in core design and planning teams. Additionally, such intelligence professionals should also focus the collection and analysis of operational-level and tactical-level ISR to enable effective operations and campaigns. When employed by an open-minded and collaborative commander, the complementary processes of operational intelligence and Operational Design will enrich the operational art in the information age.

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